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THE AETIOLOGY OF POST-ARSPHENAMINE JAUNDICE

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Damage to the liver parenchyma, with or without icterus, can occur at any stage of untreated syphilis, acquired or prenatal. Icterus is rare in early acquired syphilis, and when it appears is usually coincident with secondary manifestations, original or relapse. The liver biopsy findings in cases of jaundice in untreated secondary syphilis are indistinguishable from those seen in cases of post-arsphenamine jaundice. Liver material from untreated secondary syphilitics who show no clinical signs of liver damage is quite normal. Jaundice in untreated cases, though of some interest, is of less importance than the icterus which appears after arsenical treatment has been started. This type of jaundice, frequently referred to as "post-arsphenamine jaundice," differs from the jaundice of untreated early syphilis in certain respects. In the latter type the use of arsphenamines in treatment is, in our experience, without danger and leads to a rapid clearing of the icterus. This is not so in the case of post-arsphenamine jaundice. Although many cases have been described in which arsenical treatment has been continued through post-arsphenamine jaundice, we are convinced that such a policy is dangerous. The administration of arsenic before clinical and biochemical recovery in some such cases has produced alarming evidence of increased liver damage. Milian (1934), who believed that the delayed jaundice of arsphenamine treatment is due not to the drug but to a hepatic recurrence of syphilis, continued to treat 75 cases with arsphenamine, and claimed satisfactory results in 66. Of the remainder, 11 were intolerant and 4 died.

Goodman and Gilman (1941) thought that jaundice during arsphenamine treatment "may be due to one or a combination of the following factors—the drug, syphilis itself, or intercurrent infection. The evidence is convincing that many cases represent attacks of non-specific catarrhal jaundice occurring in patients whose livers are subjected to the added insults of syphilis and an arsenical." Mitchell (1943), reporting on jaundice in syphilitics under treatment in the Canadian Army in Great Britain, suggested that jaundice is due to "the association of two hepatoxic agents—the arsenic and the agent or toxin of infectious hepatitis in patients under arsenotherapy." These two opinions imply that the infectious hepatitis or non-specific catarrhal jaundice (other synonyms—toxic hepatitis, non-spirochaetal epidemic jaundice, simple jaundice, acute catarrhal jaundice) associated with arsenical treatment in syphilitics is identical with that which produces jaundice so frequently in the normal population and which has become so prevalent in recent years.

Two Types of Hepatitis

It is necessary to emphasize the fact that there are apparently two types of hepatitis occurring during arsenical therapy: (*a*) an early type which is usually mild and appears within the first two weeks after the first injection of the drug has been given; and (*b*) a late type which may appear at a variable time after starting treatment, but usually becomes obvious between the 12th and 17th weeks of treatment.

The early type is most commonly seen in intensive arsenotherapy (five-day or twenty-day), but it can occur during the standard treatment course of weekly or bi-weekly injections of an arsenical. The manifestations vary from an increase of urobilinogen excretion to a slight degree of actual icterus of conjunctivae or skin, but are always short-lived. It has been suggested that the cause of this condition may be a direct arsenical damage of the capillaries somewhat analogous to that found in haemorrhagic encephalitis following intensive arsenical treatment. The late type usually appears, as has been stated above, between 12 and 17 weeks after the initiation of arsenical treatment, whether by the intensive or the standard methods.

The pathological pictures and laboratory findings in these two types are different. In the early type there is an increase in the total blood cholesterol, cholesterol esters, and blood phosphates, with "bile thrombi" and cholangiolitis in liver biopsy specimens (Gutman and Hanger, 1941; Naunyn, 1919). The late type shows a marked alteration in the liver cells, ranging from swelling to necrosis with varying degrees of fibrosis (Dible and McMichael, 1943; Dible, McMichael, and Sherlock, 1943). The serum bilirubin values are higher than normal, and may be as high as 49.5 mg. per 100 ml. (in a non-fatal case in our series).

The type with which we are here concerned is the late or delayed type of jaundice which occurs in patients suffering from early syphilis who are being treated with neoarsphenamine by the routine British Army method. This antisyphilitic treatment consists of weekly injections of 0.6 g. of neoarsphenamine for ten weeks, followed by an interval of four weeks, when a similar second course is given. Third and fourth courses of treatment are given, but a four-weeks rest is interposed between each two treatment courses.

Syphilis and Arsenicals as Causal Factors

The three factors which Goodman and Gilman (1941) suggest as being responsible, either singly or in combination, for post-arsphenamine jaundice are syphilis, the arsenicals, and an attack of non-specific catarrhal jaundice. There is no pathological evidence to support Milian's view that the delayed jaundice of the type under consideration is due to syphilis of the liver (Dible and McMichael, 1943). The organic arsenicals used in the treatment of syphilis are, however, hepatotoxins. They can produce liver damage in experimental animals, and are almost certainly responsible for the early type of jaundice occurring in intensive arsenical treatment (Lloyd Jones and Maitland, 1943). If they were solely responsible for post-arsphenamine jaundice it might be expected that the incidence of jaundice would remain fairly uniform from year to year. Before the war and up to the spring of 1941 the experience of one of us (J. M.) in clinic practice showed that the incidence of jaundice was about 2 per 100 new cases of early syphilis under treatment. Although there was no change in the scheme of treatment, dosage, type, and manufacturers of the drug, the

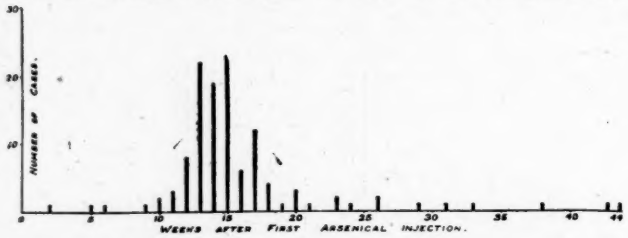
incidence rose steadily during 1941 and 1942, until in one clinic (M.I.H.) 46% of treated cases developed jaundice.

The possibility that owing to wartime conditions there might have been some alteration in the toxicity of the drug used was considered. This hypothesis was discarded early when it was discovered that other clinics whose jaundice incidence was lower were using the same drugs and in some cases the same batches of drugs from the same manufacturer. Drugs from different manufacturers and different batches of the same drug were tried in this clinic, but the incidence was not significantly affected whatever drug or batch was used. As Curtis (1942) had observed that an increase in the amount of drug used (from 7.5 to 13 g. in thirteen weeks) increased the jaundice incidence from 7–8% to 25–30%, it was thought that a reduction in the dose of arsenical from 5.85 g. to 4.05 g. over a period of ten weeks might show a significant decrease in incidence. In certain clinics where the reduced dosage was used no such decrease was observed during an adequate period of observation. When arsenoxide was given by bi-weekly injection instead of neoarsphenamine once weekly there was again no significant drop in incidence, although the total amount of arsenic was very much reduced.

The above evidence suggested that although syphilis and the arsenicals can produce liver damage they cannot be responsible alone for the increase in jaundice observed in our clinic (M.I.H.). Ruge (1927) made the observation that in the German Navy the incidence of jaundice in syphilitics bore a definite relation to the incidence of infective (non-spirochaetal) jaundice in the general population. When the incidence rose in the non-syphilitics a parallel rise occurred in the syphilitics. Stokes, Ruedemann, and Lemon (1920) noted a similar phenomenon. The present rapid rise in the incidence of jaundice among syphilitics in this country has been observed over a period when infective hepatitis was becoming increasingly common in the general population. There would thus appear to be good reason for considering the third possibility of Goodman and Gilman's—namely, an infective factor.

The Role of Infection

The complete records of 119 male cases of early syphilis who had received all their antisyphilitic treatment at one clinic (M.I.H.) were available. The time interval between the attendance at the clinic when the first arsenical injection was given and the time of onset of jaundice was determined for each patient. A graph showing the number of cases of jaundice in each week following the first injection was prepared (see Fig.). The array ranged from the 11th to the 44th week after



Graph showing number of M.I.H. cases of post-arsphenamine jaundice occurring in each week of antisyphilitic treatment. (Total cases, 119.)

the first arsenical injection. The median lay in the 15th week. Of the 119 cases, 90 (76%) occurred during the 12th to 17th weeks (inclusive).

If it be assumed that some infective factor was transmitted from patient to patient, the latent or incubation period of most of the cases would appear to be between 12 and 17 weeks. The wide limits of the incubation period and the presence of 20 cases occurring after longer periods might be explained by assuming that infection did not take place until some injection later than the first. Some of the remaining 9 cases which occurred before the 12th week may not be late or post-arsphenamine jaundice, but may be examples of the early type discussed above.

It seemed unlikely that the disease was spread by contact, as is infective hepatitis, but that the spread occurred through inoculation of an infective agent when arsenical injections were being given. Bigger (1943) has pointed out that imperfect sterilization might be responsible for leaving in the syringe infective material which could then be passed into the next person injected by the same syringe and needle. The incubation period in our cases of post-arsphenamine jaundice was probably between 80 and 100 days, which was about three times as long as that determined by Pickles (1939), Edwards (1943), and Ford (1943) for infective hepatitis in non-syphilitics in which there was no possibility of transmission by inoculation.

The length of the incubation period and the possibility that an infective agent had been transmitted by inoculation suggested that post-arsphenamine jaundice might be identical with the jaundice which occurs after the administration of human blood products or of yellow fever vaccine containing human serum (Findlay *et al.*, 1937, 1938, 1939; MacNalty, 1938; Propert, 1938; Soper and Smith, 1938; Beeson, 1943; Memorandum by Medical Officers of the Ministry of Health, 1943; Morgan and Williamson, 1943; Steiner, 1944). Although the possible incubation periods recorded by these various observers are not identical the median for each series of observations falls within or slightly before the period in which the greater number of our cases of post-arsphenamine jaundice occurred (76% of cases between the 12th and 17th weeks). While this evidence is highly suggestive it is not sufficient to prove the complete identity of post-arsphenamine jaundice with the types following the use of human blood products. It does, however, appear to separate all these types of jaundice from the epidemic form of infective hepatitis such as described by Pickles.

An attempt has been made to obtain some precise information on the method of transmission of the disease. It was suggested by MacCallum early in 1943 that if transmission of the infective factor in post-arsphenamine jaundice was due to inoculation of infective material contained in imperfectly sterilized syringes, then if each patient were given a syringe at the beginning of his treatment and received injections only by that syringe after proper sterilization the transmission of infection ought to be eliminated. It was decided to treat 10 early syphilis cases and to give each patient a new and unused syringe for his exclusive use for all his injections. (The syringes for this experiment were provided by Dr. MacCallum.) Such syringes and needles were washed and boiled both before and after each injection. Because of postings to units away from the Command only four of the ten were observed beyond 120 days after the first treatment. No case of jaundice appeared in this group in spite of the fact that the patients were in contact for about the first 14 days of treatment, and subsequently at least once each week, with men who later developed post-arsphenamine jaundice. One of the four men under observation proceeded on leave and received two arsenical injections at another clinic from syringes used to inject other patients. The syringes were not boiled after being used for previous patients, but had been rinsed with sterile water followed by 70% alcohol, and were given a further rinse in distilled water. This man developed jaundice later. The relevant data are given below:

Patient S

Date of first injection	May 26, 1943
" " " at "S" clinic	Sept. 2
" " second " " "	" 8
" " first symptom of liver damage	Nov. 24
" " icterus	" 27
Interval between first injection at "S" clinic and first symptom of jaundice	83 days

This series, though short when taken in conjunction with Bigger's experiments, is strongly suggestive of blood transmission. The single case of jaundice after a probable accidental infection might establish the latent or incubation period for post-arsphenamine jaundice as being about 12 weeks. It suggested, too, that patients transferred from V.D. clinics, where the incidence of jaundice was low, to M.I.H. clinic, where the incidence was high, might, if they developed jaundice, show some evidence that their infection took place at the latter clinic. Eight men were traced who had such histories. Details are given in Table I.

All these cases have time intervals between the first injection at M.I.H. clinic and the onset of jaundice which fall within the range of 12 to 15 weeks—precisely the range within which the greater number of cases of jaundice appeared in the large series of 119 patients. If it be assumed that the exact incubation period is 12 weeks from inoculation of the infective material (as occurred in the single case described above), then only

TABLE I

Case	Date 1st As Inj.	Date 1st As Inj. at M.I.H.	Date Appearance of Icterus	Days from 1st Inj. to Icterus	Days from 1st Inj. at M.I.H. to Icterus
Fr.	26/ 3/42	13/ 8/42	1/12/42	250	110
G	17/ 4/42	22/ 8/42	9/12/42	236	109
M	2/ 8/42	16/10/42	30/ 1/43	181	106
N	12/ 1/42	18/11/42	21/ 2/43	405	101
L	29/ 9/42	20/11/42	17/ 2/43	141	89
S	7/ 8/42	3/ 1/43	20/ 4/43	256	107
F	27/11/42	25/ 2/43	4/ 6/43	190	99
D	17/10/42	26/ 2/43	7/ 6/43	233	101

portion of the patients are infected at the first injection, but the chances of becoming infected are greater with each successive injection. This would explain the shift in the median to the 15th week in the long series, the large number of cases occurring up to the 17th week after the first injection, and the sporadic cases up to the 44th week.

"X" and "Y" Diseases

The disease described by Pickles, Edwards, and Ford had an incubation period of about 28 to 30 days and was transmitted by contact with a person who was infective. In post-arsphenamine jaundice and in homologous-serum jaundice the incubation period is about three times as long and transmission is by inoculation of the infective material. These considerations suggested the possibility that there were two diseases—an "X" disease—i.e., infective hepatitis—and a "Y" disease, including post-arsphenamine jaundice and jaundice following the injection of human blood products as described above. Clinically and biochemically it has not been found possible to differentiate these diseases. When biopsy specimens from the liver are taken the pathological appearances have been shown to be common to each type of disease (Dible, McMichael, and Sherlock, 1943).

Assuming that two diseases do exist and that the infective factors are different, immunity conferred by one disease might not protect against the other. Pickles, in a private communication, is of the opinion that the immunity conferred by an attack of jaundice (infective hepatitis) is "as complete as that conferred by an attack of measles." His records contain only one instance of a possible reinfection. It would appear that there is but a remote chance of a reinfection with X disease. In our series of 105 cases of X disease no instance of a reinfection could be traced. There were no clinical relapses in this series. By analogy it might be expected that an attack of Y disease would confer similar immunity.

At one hospital (M.I.H.) 280 cases of jaundice were treated in the jaundice ward and one as an out-patient. All were syphilitics. Of this group seven developed a second attack of jaundice. The relevant data are given in Table II.

TABLE II

Case	1st Inj. As	1st Symptom of Jaundice	Interval between 1st Inj. and 1st Symptom (days)	2nd Attack of Jaundice began	Interval between Attacks (days)	Interval between Discharge from Hospital and Date of 2nd Attack (days)
H	9/12/41	26/ 1/42	48	29/ 6/42	154	137
M	9/ 7/42	9/11/42	123	1/ 3/43	112	98
B	14/ 8/42	22/ 2/43	192	29/ 7/43	157	119
L	29/10/42	8/ 3/43	130	5/ 5/43	58	50
C	12/12/42	21/ 3/43	99	22/ 5/43	62	33
E	13/ 5/43	10/10/43	150	3/11/43	24	7
Fs.	8/ 6/43	11/ 9/43	95	11/10/43	30	11

Patients E and Fs. were most probably examples of true relapse caused by untimely celebration of their discharge from hospital. There was no evidence that, either immediately before or during their stay in hospital, they had been in contact with a case of infective hepatitis or a person who subsequently developed the disease. Patients C and L had been seen at weekly intervals between their discharge from hospital and their second attack of jaundice. They were apparently quite fit during the interval and were on full duty. Arsenical injections had not been resumed. There was thus a possibility that their second attack was due to an infection with X disease after their discharge from hospital. Contact with known cases could not be proved. Cases H and M could not have been reinfections with Y disease as they had received no injections of any kind at the hospital or elsewhere until four weeks before their second attack, when arsenical treatment was resumed. Toxic hepatitis due to the arsenical itself was ruled out as there was no supporting evidence to justify this possibility. There remained a possible infection with X disease, but again an attempt to trace contacts failed. Patient B's case was exactly similar to those of Patients H and M except that he resumed arsenical treatment only two weeks before the second attack. If the two patients who had a simple relapse be omitted there are left five possible examples of infection with X disease out of a total of 281 cases. This gives a possible "infection" rate at this hospital (M.I.H.) of 1.8%.

At another hospital, B, the patients under treatment in the jaundice ward included some who had X disease (infective hepatitis) and others with Y disease (post-arsphenamine jaundice). At no time did the ward contain only one of the two diseases. During a period of six months 80 cases of Y disease and 40 of X disease were treated. While there were no relapses or reinfections in any of the cases of X disease five so-called relapses occurred in Y-disease patients. An analysis of the time of appearance of the relapses showed that they fell within a period lying between the 30th day after admission to hospital and the 30th day after discharge. As it was possible in this group to be certain of full clinical and biochemical recovery, and as all had shown no abnormal response to test doses of neoarsphenamine, the presumption is that these cases were true infections with X disease and that such infections were contacted while in the ward. The "infection" rate was therefore 6.3% as compared with 1.8% in the other hospital (M.I.H.).

In Hospital B the cases of X disease occurred exclusively in U.S. Army personnel, while the Y cases occurred almost exclusively in British Army personnel. An analysis of the U.S. Army cases showed that all had received yellow fever inoculations at least eight months before they developed jaundice in England. Of the 40 cases 5 had developed jaundice within four months after their yellow fever inoculations and while still in the U.S. If it be assumed that post-vaccinal yellow fever jaundice is Y disease, then this disease did not confer immunity against an attack of X disease. That the second attack was X disease was proved by evidence of contact with cases of X disease 28 to 30 days before the second attack began.

The evidence so far is suggestive that an attack of Y disease does not immunize against X disease. It might be expected that an attack of X disease does not immunize against Y disease. Of the 360 cases of Y disease in both hospitals evidence of an attack of jaundice preceding the syphilitic infection was obtained in only 6 cases. The time interval between the attack of presumably X disease and the attack of Y disease varied between 10 years and 18 months. The evidence to support a diagnosis of X disease was not good, as it was impossible to secure a history of contact with other cases of jaundice, except in two of the six cases.

The recent large-scale epidemics of post-vaccinal yellow fever jaundice and of infective hepatitis ought to provide in the near future more convincing evidence than has been produced here on whether or not there are two diseases each of which provides no immunity against the other.

Summary of Present Evidence

The evidence at present available may be summarized as follows:

X disease, or infective hepatitis, has an incubation period of about 28 to 30 days and is transmitted by contact. It can exist in a form in which icterus never appears but which is apparently sufficient to confer immunity against reinfection.

Y disease, whether late post-arsphenamine jaundice or homologous-serum jaundice, has an incubation period of 80 to 100 days and is transmitted by inoculation of infective material (blood, serum, or plasma).

An attack of Y disease presumably confers no immunity against X disease.

Evidence that an attack of X disease confers no immunity against Y disease is scanty and incomplete, but is suggestive.

Relapses of Y disease have been explained mostly on the grounds of an infection with X disease.

It is not known whether an attack of Y disease due to inoculation with icterogenic serum or plasma confers immunity against the Y disease occurring during arsphenamine treatment for syphilis.

In view of the identity of clinical, biochemical, and pathological pictures of X and Y diseases the final proof of the reality of two infective factors must rest in the end on the production of convincing serological evidence and the accumulation of more data on their aetiology.

[Since the above was written we have had, through the kindness of Dr. A. M. McFarlan, the opportunity of reading an unpublished paper by himself and Dr. G. Chesney on jaundice following the injection of mumps convalescent serum. These observers have put forward views which are in close agreement with ours but are based on other data and were arrived at quite independently. Dr. McFarlan generously offered to allow us to use some of the unpublished data in his article, but as publication of it is imminent we preferred to see both sets of data appear separately.]

We wish to thank the medical officers of the two hospitals where cases have been under observation for their co-operation and careful note-taking. To Lieut.-Col. H. L. Sheehan, R.A.M.C., we owe more than mere thanks, for the hypothesis which we have put forward was developed during a discussion with him. He is therefore in part responsible for some of the basic ideas here presented. We are grateful to Dr. A. M. McFarlan for reading our manuscript and for many most helpful suggestions which we have adopted. We acknowledge our indebtedness to Dr. Wilfred Pickles for checking his case records of infective hepatitis to determine the incidence of reinfection in his series and also for much useful information he has given us concerning this disease.

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WHAT IS PSYCHIATRY?*

BY

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It has been my experience that, apart from an imaginative minority, most people have either had close contact with what is called mental disease through having seen a relative or friend attacked by some form of it, or, on the other hand, they have virtually no interest in psychiatry, but merely an ignorance enhanced by aversion and evasion. Close contact even for one day with a friend who has become insane is an experience which beggars any argument for the importance of psychiatry, and only those who have never seen mental disease at close range can shrug their normal shoulders with unconcern or with unruffled resignation assume the adequacy of the nearest asylum.

Whereas the usual physical ills concern the inadequate performance of heart, lungs, stomach, or some other organ in the service it renders to the rest of the body, psychiatric diseases must in the main still be defined in terms of inadequate performance of an individual human being *vis-à-vis* other human beings. Psychiatrists study and treat human beings who are inadequate or actually dangerous in their behaviour as members of society; and so it happens that psychiatry as the study of disordered conduct is intimate to an almost suspicious degree with ethics, with cultural anthropology, with sociology, with metaphysics, with religion, with artistic activities—and this despite the fact that the behaviour of a human individual as a whole should be as soundly understood in terms of medicine as the behaviour or function of any of his component organs. To understand mental disease calls for medical art and science, but also for a wide knowledge of the society and culture to which each of us must learn to adjust.

Let me here offer you two ideas of cardinal importance to your understanding what psychiatry is: first, that the psychiatrist studies the function and the influence of mental processes and emotional states in the whole vast range from incurable disease to optimum health; and, second, that the psychiatrist seldom handles conditions which he can describe without reference to the demands of society upon the individual. As the functions of an automobile are not the functions of its carburettor or its gears, so the functions of man as a whole individual, not only transcend but differ radically from the functions of any of his component organs or systems. If psychiatry has especially close connexions with the nervous system, it is quite natural; for the function of the nervous system is to co-ordinate, to integrate, to adjust, to harmonize, to administer the services of all the organs of the individual and to perpetuate his identity as a person through a finite but extremely long series of changing environments—dangers and difficulties and defeats, as well as resting periods, comforts, and delightful successes.

The Range of Psychiatry

I should not be satisfied with the definition of psychiatry as "that specialty of medicine which deals with mental disorders." Like a bad newspaper headline, such a definition confines while condensing and misrepresents by oversimplifying. Psychiatry deals also with the emotional and social life of man, not merely his reasoning mental operations. In so far as experience has shown you that emotional thinking is different from logical reasoning, the whole purview and range of psychiatry is evidently extended. Indeed, the province of psychiatry is the conduct of man, his reactions, his behaviour as an indivisible sentient being with other such beings. Until recently attention has been given only to grossly disordered conduct—to persons locked up in asylums; but now the field is far more inclusive because it reaches into the anxieties, the fatigues, the instabilities, the adjustments, the disturbances of normal everyday living, and also because it includes the effects of mental and emotional functions upon the component organs of the body as well as the effects of disorders of these organs upon the functions of the human being as a whole.

Let us make the position of psychiatry a little clearer by distinguishing it from neurology and from psycho-analysis. Neurology is the study of the nervous system; more specifically, the diseases of the nervous system. Obviously there is much overlapping between neurology and psychiatry when defects or diseases of the brain, spinal cord, and peripheral nerves are involved. But neurology points toward the functions of the nervous system as serving the efficiency of the individual machine, while psychiatry directs its attention to conduct—that blend of mental and emotional functions, dependent, it is true, largely upon the nervous system but involving more than the serviceability of that system to the individual as a whole. The location, structure, and function of the nerves and the paths taken by nerve impulses are the basic knowledge of the neurologist. The neurologist learns to detect where injury or infection is located along a large variety of nerve tracts. To the studies of gunshot injuries of the nervous system American neurology owes its beginnings during the Civil War. The location of a brain tumour, or the cause of a paralysis or loss of sensation due to nerve injury, is the task of a neurologist, not a psychiatrist. Most neurologists practise psychiatry because what the layman calls "nervousness" is not an affair of nerve tracts but is due to emotional conflicts or other psychiatric disturbances. Psychiatric disorders are much more numerous than neurological disorders.

Indeed, the psychiatrist's domain is almost bafflingly large, for it includes derangements of conduct or behaviour often

* An address given to the Trustees of the Rockefeller Foundation of New York.

discernible only in terms of the patient's relationships with other human beings in some given intellectual or cultural or social or moral system. And that presupposes a considerable knowledge of language, of customs, of tradition, of the culture and *mores* that surround the patient. For these derangements a wide gamut of causes may be responsible, and for their correction an equally varied assortment of treatments may be effective. Indeed, so complicated and numerous are the components of normal human conduct that it has taken years of study of abnormalities to arrive at even a tentative list of what had hitherto escaped recognition because of its presence in normal persons. As a figure of speech we say, "It sticks out like a sore thumb." In the same way normal behaviour remains inconspicuous until disease calls attention to its numerous components. Psychiatry has had to take the long road to recognition of a function through the conspicuousness of its absence.

Let me offer some examples of such functions of the personality suddenly made conspicuous.

A man receives a severe blow on the head. He may be dazed or confused, with or without knowing that he has lost touch with reality. Or he may lose consciousness or lose his memory for the events immediately preceding the blow. Thus we see that the normal man should know where he is, be conscious, and have memory intact.

A soldier may receive a bullet which traverses a part of his brain. The permanent after-effects may be a loss of initiative amounting to the general apathy of a purely vegetative life. Such placidity is not the normal condition of a man.

Alcohol in excess produces effects which would seem more remarkable if they were less familiar: a sense of self-confidence and well-being—as William James said, the mood of "saying yes to everything"—a loss of discretion and self-control, and in extreme cases sensation, emotion, and mental activity erased in stuporous and dangerously insensate sleep.

You will note that the phenomena are of the order of derangements of conduct of the individual as a person, and that it is sometimes hard to separate psychiatric symptoms from immorality.

A malnourished patient with pellagra exhibits irritability, emotional instability, and a sense of fatigue. A patient with the delirium which often accompanies high fever suffers from delusions, believing perhaps that his attendants are soon to be his assassins, and reacts accordingly. Human beings of either sex as they approach the fifties or sixties often pass through a year or so of depressed spirits and show a morbid concern for their health, but emerge on the other side of that too-little-recognized slough of despond with a serenity and good cheer which comfort in equal measure themselves and their friends. An elderly man whose hardened arteries supplying the brain give insufficient service there shows childlike temper tantrums and embittered pigheadedness.

A tumour of the frontal lobe may show its first symptoms in an inordinate weakness for making puns and jests of doubtful propriety. An infection of the brain with the spirochaete of syphilis often results in delusions of grandeur and self-importance which are no less disastrous for having an insidious and unrecognized beginning.

Now you will note that each of the symptoms I have mentioned relates to conduct, and yet each was different. Also, please note that these psychiatric symptoms resulted from conditions afflicting a previously well person, and are accompanied by physical or chemical events in the body which can be stated in terms other than those of conduct. There was a bruise on the scalp, a bullet hole, alcohol in the blood, inadequate vitamins, high fever, a reduction of sex hormones, a tumour, deficient blood supply in the brain, or positive Wassermann in the spinal fluid.

Psychiatry and the Subnormal

But psychiatrists must deal also with aberrations from normal conduct in persons who never were normal—with idiots whose heads never grow larger than a grape-fruit, with cretins whose brains have been irreparably handicapped by lack of iodine, with congenital epileptics, and other hereditary or congenital disease—but in each of these conditions the essential and pressing fact is that in terms of relationship with normal human beings these patients are obviously incapable of the expected conduct.

Thus far the conditions mentioned have involved, in the first place, disorders of reaction, conduct, or behaviour which are at the same time recognizable by characteristic changes in body structure or body chemistry. These are the conditions more easily recognized—where function and structure are both at variance with the normal.

There remains a much more difficult group of diseases of which up to now we can merely say that conduct and types of reaction are disordered but no structural or chemical variation is known to accompany in characteristic fashion the all too obvious symptoms of social, moral, and intellectual inadequacy. In this category falls every gradation of disintegrated personality, from the uncontrollable manias of the madhouse to the trivial fears and the virtually harmless mannerisms or petty foibles of everyday life. In this category, too, fall most of the psychiatrist's cases—the schizophrenics with their characteristic inaccessibility and remote rejection of emotional exchange with normal persons, the manic-depressives with their unreasonable melancholia or equally irrational elation and overactivity, the feeble-minded, and the long list of psychoneurotics with their hysterias, anxieties, obsessions, and states of inexplicable fatigue and indecision. None of these conditions has any characteristic physical accompaniment which can be detected by the present methods of laboratory examination, and for these conditions the methods of the psychiatrist are only accurate description of the patient's reactions and conduct, together with an elaborate and meticulous history or narrative of the development of the disorder.

Psycho-analysis

It is here that we may describe psycho-analysis as one of the methods of eliciting from a patient the narrative and the nature of his intellectual and emotional growth. Psycho-analysis is only one of the methods and forms of interpretation of human conduct. It is one of the more illuminating methods used in psychiatry but not effective in curing many psychiatric diseases. It is an elaborate and relatively recent assembly of theories or postulates, based upon the study of all that the patient says in oft-repeated interviews with the analyst regarding his memories, his attitudes, his day-dreams and fantasies, his dreams, his emotional life, his sins and peccadilloes. There is an element of the confessional in such recitals and a relief obtained by discussing subjects previously repressed. Psycho-analysis postulates the immense importance of the unconscious and assumes a duality in human behaviour, a conscious, acceptable, idealistic force often in conflict with unconscious primitive animal desires; and psycho-analysis further attaches great importance to the successive and complete changes necessary in the growth of an infant from a completely dependent, amoral animal to an ethically passable adult. By many it is overrated as an exclusive form of treatment, but by even more it is underrated as a prerequisite for many types of treatment. Anatomy and physiology are not treatment, but they are applied in treatment. And certainly psycho-analysis is not a casual experience: even more than an abdominal operation it calls for a cautious operator whose knowledge and experience should exceed his enthusiasm to get to work. The emphasis which Freud attached to the role of sex seems at times fantastic, but, on the other hand, equally extraordinary would be the assumption that so essential a function throughout plant and animal life can be adequately understood or directed by pious moralizing, rattled evasion, and stern taboo. Let me read from the essay *On Instincts* by William Morton Wheeler, whom Whitehead characterized as the only man he had ever known who would have been both worthy and able to sustain a conversation with Aristotle.

> "Similar considerations have led me recently to read some twenty volumes of psycho-analytic literature comprising the works of Freud, Jung, Brill, Adler, Ernest Jones, Ferenczi, Bjerre, and W. A. White, with the result that I feel as if I had been taking a course of swimming lessons in a veritable cesspool of learning. As I have not since had an opportunity to take a spiritual shower-bath you will understand why my remarks throughout this paper lack the customary refinement of a Sunday evening discourse.
>
> "I should, of course, be wandering entirely off my beat if I attempted seriously to discuss psycho-analysis, but I cannot refrain from recording a few personal impressions of what I believe to be one of the most extraordinary and far-reaching contributions to thought. Having had a fling at nearly all the types of biologists and at the non-biologists who have handled instincts, I now see my opportunity to get under the skin of the psychologists. After perusing during the past twenty years a small library of rose-water

psychologies of the academic type and noticing how their authors ignore or merely hint at the existence of such stupendous and fundamental biological phenomena as those of hunger, sex, and fear, I should not disagree with, let us say, an imaginary critic recently arrived from Mars, who should express the opinion that many of these works read as if they had been composed by beings that had been born and bred in a belfry, castrated in early infancy, and fed continually for fifty years through a tube with a stream of liquid nutriment of constant chemical composition. To put it drastically, most of our traditional psychologists are about as useful for purposes of understanding the human mind as an equal number of dissertations on Greek statuary would be to a student eager for a knowledge of anatomy. Such a student at once learns that the object of his investigation, the human animal body, is very largely composed of parts offensive to the aesthetic sense, but this does not deter him from studying them as thoroughly as other parts. The typical psychologist, who might be expected to study his material in the same scientific spirit, does nothing of the kind, but confines his attention to the head and the upper extremities and drapes or ignores the other parts.

"Now I believe that the psycho-analysts are getting down to brass tacks. They have discovered that the psychologist's game, which seems to consist in sitting down together or with the philosophers and seeing who can hallucinate fastest or most subtly and clothe the results in the best English, is not helping us very much in solving the terribly insistent problems of life. They have had the courage to dig up the subconscious, the hotbed of all the egotism, greed, lust, pugnacity, cowardice, sloth, hate, and envy which every single one of us carries about as his inheritance from the animal world. These are all ethically and aesthetically very unpleasant phenomena, but they are just as real and fundamental as our entrails, blood, and reproductive organs. In this matter, I am glad to admit, the theologians, with their doctrine of total depravity, seem to me to be nearer the truth than the psychologists. I should say, however, that our depravity is only about 85 to 90%.

"In nothing is the courage of the psycho-analysts better seen than in their use of the biogenetic law. They certainly employ that great biological slogan of the nineteenth century with a fearlessness that makes the timid twentieth-century biologist gasp. But, making all due allowance for the extravagant statements of Freud and Jung and their disciples, any fair-minded student of human nature is compelled to admit that there is a very considerable residuum of accurate observation and inference in their accounts of the dream, of the perversions of the nutritive and sexual instincts, of the erotic conflicts and repressions, and of the surviving infantilisms. . . . .

"To me one of the most striking indications that the psycho-analysts are on the right road is the fact that many of their theories have such a broad biological basis that they can be applied, *exceptis excipiendis*, to a group of animals so remote from man as the insects. This has not escaped Jung, who calls attention to the striking analogies between the nutritive caterpillar stage and human infancy, the chrysalis and the period of latency, and the imaginal butterfly and puberty in man. There are even cases of repression and sublimation as in the workers of social insects, and did time permit I could cite examples of multiple personality or of infantilisms—that is, larval traits which survive or reappear in the adults of many species. Insects undoubtedly sleep. Do they dream? If they do, what a pity that we shall never be able to apply the Freudian analysis to the dream of that symbol of sexual repression and sublimation, the worker-ant!

"But these are trivial considerations. The great fact remains that the work of the psychiatrists is beginning to have its effect even on such hidebound institutions as ethics, religion, education, and jurisprudence, and that the knowledge that is being gained of the workings of our subconscious must eventually profoundly affect animal no less than human psychology, since the subconscious *is* the animal mind."

Psychology

Now let us turn to one other field close to that of psychiatry where differences from psychiatry may serve for the purpose of definition. As physiology is to the practice of medicine, psychology is—or should be—to the practice of psychiatry. In the history of medicine the investigation of the normal did not precede the study of the abnormal. The abnormal has revealed the normal as the exception illustrates the rule. Similarly, psychology as the study of the normal function of the organism has received much from psychiatry. Indeed, the whole method of experimentation in so far as it creates artificial conditions produces in some degree illuminating abnormalities. As a source of knowledge the abnormal precedes the normal.

There are psychiatrists who would be content to describe psychiatry as medical psychology, just as there are physicians who insist that medicine is physiology applied to disease. Though in theory psychology should play this role and thus be the handmaiden to psychiatry, she is in reality a very green-haired girl with almost as much to unlearn as to acquire before she becomes indispensable to the psychiatrist. Patience rather than dismissal is indicated; for even now psychology, especially when well grounded in biology and physiology, is valuable. Already psychology gives real though limited service in mental testing, conditioned reflex research, localization studies, and in certain selective procedures like the Rorschach test.

A Summary

To summarize the foregoing: Human beings are not merely collections or assemblies of collaborating organs. They have functions and capacities characteristic of organisms as a whole and appropriate for individuals living in indispensable contact and collaboration with other human beings. What they do we call conduct or behaviour (and equally important, what they manage to keep from doing). Psychiatry is the field of study which concerns a very wide range of disorders, defects, or inadequacies of behaviour of these individuals. It has been wisely said that life's aim is an act, not a thought. In the same sense it is not merely mental phenomena that constitute the material of psychiatry, but that blend of instincts, emotions, thoughts, and feelings and physiological states which eventuates in conduct—in action or the inhibition of action. It is true that conduct will be affected by physical, chemical, or other disturbances in some part of the machinery of the body—e.g., bullet wounds, metabolic disorder, alcohol, bacterial disease. But it is also true that we witness disturbances for which we can find as yet no cause so simple and objective, where mood and motivation, emotions and instincts, and the faculties of adjustment to reality appear to be in conflict or disorder; and these derangements also are the task of the psychiatrist.

The Status of Psychiatry

Now for a few comments upon the status of psychiatry and I am done. Since 1880 medicine as a whole has profited immeasurably from two broad lines of study—bacteriology and cellular pathology. The one explained a host of diseases as due to invading micro-organisms, the other described in analytical terms of separate organs and organic disease the phenomena shown by sick people. There has been for the past fifty years, however, something approaching neglect of the patient as a person. Let me quote from a first-rate physician—Louis Hamman of Baltimore.

"To the specialist, psychiatry is another specialty operating in a contiguous but separate domain. To the internist, it is a vital and integral part of his work. Indeed, I find it impossible to formulate a clear expression of the relation of psychiatry to medicine, so intimately and inextricably are they bound together. The physician studies and practises psychiatry continuously, even when he protests that he has not the least knowledge of formal psychiatry. It is the chief instrument of his success, even though he may practise it unconsciously. . . .

"In spite of this growing importance it is the subject about which medical students know least and the one in which their training is most deficient. The reasons for this slighting treatment of psychiatry are many; I can mention only a few of the outstanding ones.

"1. The General Lack of Appreciation of the Importance of the Subject.—When I was a medical student psychoneurotics were objects of ridicule and contumely, not of serious study and sympathy. The patient with no gross lesion to justify his many complaints was neglected and avoided. The worst insult that could be cast at a fellow-student was to call him neurasthenic. After careful observation had established the fact that a patient had no organic disease professional relations were supposed to be at an end and he was dismissed with some reassuring remark as, 'There is nothing whatsoever wrong with you; your troubles are imaginary; go and forget them,' or even more curtly with a placebo and the ardent hope that he would never return. With the passage of years this brusque attitude has become somewhat softened, and yet essentially it is still the attitude of many physicians. The mind always seeks precise classification and is never more pleased than when experience can be snugly labelled. . . .

"In order to furnish tangible evidence of the important part psychiatric problems play in the practice of medicine I have reviewed the records of 500 consecutive patients who consulted me. To give the figures any value I must explain that my practice covers the whole field of internal medicine and that patients come to me or are sent to me chiefly for diagnosis. I have no reputation as a psychiatrist nor am I even suspected of having unusual interest or

talent in that field. Not one of the 500 patients consulted me on account of an overt psychiatric condition. . . .

"Among the 500 patients there were 116 (23%) without any discoverable organic cause for the symptoms of which they complained. In addition, there were 56 (11%) presenting minor organic lesions but with symptoms which could not possibly be explained by the lesions alone. In a word, one-third of the patients suffered solely or predominantly from functional disorders."

Strictly speaking, it might be stretching a point to say that all of these functional disturbances were due primarily to psychiatric disorders. Nevertheless, if you are willing to define the province of psychiatry as the broad field I have outlined, then surely the problems of these patients are of interest and concern to psychiatrists. For instance, a man otherwise well and competent suffers from very distressing digestive symptoms whenever he is worried, or for other reasons under nervous strain. Shall we consider this a psychiatric problem? I think we undoubtedly must, since here psychic influences play the chief role in disturbing the balance of the vegetative nervous system. What is commonly called the spastic colon invades the psychiatric field more prominently than it does the gastro-enterological.

With steady insistence psychiatrists have laid stress upon the whole personality of any and every patient—their own and those in every medical specialty. Psychiatrists, despite their isolation in asylums, despite inferior recruitment to their ranks and the taboo and horror associated with insanity, despite the time required for making their diagnoses, and despite their isolation from experimental methods and the fact that laboratory animals do not appear to develop psychiatric conditions (except Pavlov's experimental neurosis)—despite all these handicaps psychiatrists are nearer to adequate discharge of their duties than they have ever been before. For the first time man studies his own conduct dispassionately and in terms of cause and effect—not devils and disasters. Cannon's work upon the physiology of the emotions, the exceptional growth of neurophysiology, thanks to Sherrington and to new instruments of registering the changes of electrical potential in nerves, the stimulus of Freudian theory, of Pavlov's work on reflex behaviour, and the steady extension of scientific methods of study of psychiatric patients, are some of the factors in the progress of psychiatry.

Much remains to be done. Kolb of the United States Public Health Service reported that in 1939 $200,000,000 was spent on mental diseases, yet not 1% of it for research. One child in every 20 in the United States will at some time of his life be in hospital for mental disease, and another child in the same 20 will at some time be psychiatrically disabled but not hospitalized. There are probably 6,000,000 feeble-minded persons of all grades in the United States, 80 to 95% at large in the population, 100,000 alcoholics and drug addicts, between 800,000 and a million mentally diseased, and 400,000 epileptics. There are more hospital beds devoted to psychiatric cases than to all other forms of disease. Ninety per cent. of the cost is at public expense. And in the face of the dislocation, loss, and sorrow in the families of the mentally disordered the statistician remains mute.

We are indebted to the Editor of the *Menninger Clinic Bulletin* for permission to republish this article.

Mr. Sydney Lamb was appointed secretary and organizer of the Liverpool Hospitals Council—now the Merseyside Hospitals Council (Inc.)—early in 1927, having already achieved notable success in Sheffield, where as secretary of the Hospitals Joint Council he increased the annual contributions from employees and employers by over £100,000 in five years. From this post of general secretary of the Merseyside Hospitals Council Mr. Lamb is about to retire. Starting in Liverpool with a rather small office, he worked indefatigably to make the "1d. in the £" principle an integral part of everyday life on Merseyside. To-day he controls a large organization which enables workers and employers to make their own contribution towards a complete hospital service—one of the most comprehensive in Britain. It assumes responsibility for the hospital service of a million Merseyside workers and their dependants, and has an annual income of £420,000. Among the many important posts held by Mr. Sydney Lamb was the office of general secretary and treasurer of the International Hospital Association, which took him to many of the great capitals and cities of both Europe and America. In 1941 he became honorary secretary of the British Hospitals Contributory Schemes Association.

OCULAR SYNDROME IN ONCHOCERCIASIS

BY

J. GRAHAM SCOTT, M.D., D.O.M.S., B.Sc.

Major, R.A.M.C.

Onchocerca volvulus (the blinding filaria) is commonly found in certain parts of West Africa and America. It produces keratitis and iritis. Strong, Sandground, Bequaert, and Ochoa (1934) found microfilariae in affected eyes. Hissette (1932, 1938) described choroidoretinitis, retrobulbar neuritis, and optic atrophy in cases of onchocerciasis. Luna (1918, 1919) had previously described keratitis punctata onchocercosa due to filarial toxins.

It is proposed to describe cases in which (1) oedema of the upper lid, (2) proptosis, (3) ciliary flush, and (4) oedema of the optic nerve occurred as unilateral phenomena in two patients with onchocerciasis, and to suggest that a lymphatic block directly due to microfilariae or indirectly due to filarial toxins (as in Calabar swelling) is an explanation of the four symptoms.

Case I

This case is that of a Gambian soldier, and is believed to be the first case of onchocerciasis described in a Gambian, it being uncommon among them. He was admitted to hospital on Dec. 31, 1942, complaining of a painful watering right eye. He had previously enjoyed good health and had experienced no trouble with his eyes until the day before admission. When admitted vision was 6/5 R., and 6/5 L. The right eye was watering and had a slight ciliary flush. The media were clear and the fundi normal. The case was diagnosed as early uveitis and treated with atropine 1% and hot-spooning 4-hourly. The next day the upper lid of the right eye was swollen and there was slight but definite proptosis.

Examination of the general and central nervous systems presented no abnormality on this or on any subsequent occasion, other than the eye signs to be described. The cerebrospinal fluid and white cells were normal. Radiographs of sella, sinuses, and orbits were normal. Blood films, day and night, revealed no microfilariae. A triple-centrifuged specimen of blood revealed a few *A. perstans*, a very common microfilaria in West Africa. A snip of conjunctiva showed no microfilariae. The Kahn precipitation test was positive (+). (This is a common finding in a yaws-infected population.) Blood pressure was 100/70. The urine had no albumin or sugar.

In five days the proptosis became less, but the right fundus showed blurring of the disk. Next day vision was 6/36 R., 6/6 L. The lower half of the right disk was covered with exudate. The oedema of the upper lid and the proptosis gradually faded during the next 14 days, but the right fundus slowly developed a low-grade oedema, with swelling of the nerve head of 1 or 2 dioptres. The upper temporal veins became veiled with exudate, and a few flame-shaped haemorrhages developed round the disk at 10 and 7 o'clock. The macula remained within normal limits till the thirteenth day, when it slowly developed a complete star reflex. Fields were as follows. Right: depressed, with enlarged blind spot but no central or other scotomata; 1/1000 white gave 5 degrees field; 5/1000 gave 25 degrees field. Left: normal. Colour test (pseudochromatic); two mistakes right eye; normal left eye.

19th Day.—Temporal veins less veiled and oedema of nerve head subsiding. Vision: 6/24 R., 6/6 L.

33rd Day.—Right fundus returning to normal. Fan reflex at macula persists. Vision: 6/18 R., 6/6 L. Fields show no central scotoma for 1/1000 white or 5/1000 colour. Patient has been having 1% atropine and heat t.i.d. to the right eye and pot. iod. gr. 5 t.i.d. by mouth. After a provocative injection of 0.45 g. N.A.B. the Kahn reaction was "doubtful positive," and a course of 10 weekly injections of 0.60 g. N.A.B. was given.

60th Day.—Vision: 6/5 R., 6/5 L. The left fundus had been normal throughout, and the right fundus showed slight cuffing of vessels on leaving the disk and a faint fan-shaped reflex at the macula. The haemorrhages had been absorbed, and only a slight fullness of the upper lid remained. On the *75th day* a slit-lamp became available. One microfilaria was seen in the right and left anterior chambers. There was no K.P., and the right cornea presented a few nebulae in the substance of the cornea. Blood films showed no microfilariae by day or by night.

90th Day.—One or two microfilariae have been seen in both eyes on most days since first noted. The course of N.A.B. is now finished. Vision: 6/5 R., 6/5 L. The right fundus is within normal limits. Patient discharged.

It was possible later to withdraw a microfilaria from the anterior chamber; this was found on staining to be *Onchocerca volvulus*. A skin snip showed many microfilariae (*O. volvulus*), although no nodules could be felt. The right eye showed one fresh yellow speckled opacity in the cornea, which I have seen only in cases of onchocerciasis.

The patient was seen again in 5 and 7 months. He was well and had no trouble with vision or with pain in the eyes, despite the presence of microfilariae in each anterior chamber. The fundi were normal, except the faintest veiling of the margins of the right disk.

Case II

The second case was admitted on July 3, 1943, with a painful swelling in the right axilla, mild oedema of the right upper eyelid, and ciliary flush. The axilla was incised and cleared in a normal fashion. The right eye, however, soon became closed with oedema of the upper lid, and proptosis developed. Both fundi remained normal, but vision dropped line by line over a period of 10 days from 6/9 on admission to 1/60. The right eye was painful with lacrimation. Radiographs of the orbits were normal. The Kahn reaction was negative. Central nervous and other systems were normal. The patient was unable to co-operate in perimetry. Day and night films showed scanty microfilariae (*A. perstans*), but a skin snip had many *O. volvulus*, and typical nodules were felt over the right and left iliac crests. No microfilariae were seen in either anterior chamber, but fine dots of pigment were observed on the posterior corneal surfaces.

On the 17th day vision was 6/12 R., 6/5 L.; oedema of the lid was lessening and proptosis and ciliary flush had cleared. On the 27th day vision was 6/5 R., 6/5 L. Slight fullness of the right upper lid remained. The right fundus was normal throughout, except for a transitory haziness on the 7th day, so the neuritis in this case was retrobulbar.

Discussion

The syndrome presented by these two soldiers is not a familiar one in general ophthalmic practice. In the cases described the diagnosis must rest on probabilities, since no single finding was sufficient to establish the diagnosis beyond doubt. The presence of oedema of the upper lid, proptosis, ciliary flush, and optic neuritis indicates a lesion behind the eyeball. The probable causes are (*a*) haemorrhage, (*b*) tumour, (*c*) infection, (*d*) congestion.

(*a*) Haemorrhage can be excluded by the absence of subconjunctival ecchymosis.

(*b*) Tumour is improbable in view of the complete recovery and lack of other signs pointing to neoplasm or cyst.

(*c*) Infection (i.e., an orbital cellulitis or a cavernous sinus thrombosis) is not supported by the findings. The absence of a history of previous sinus trouble, the healthy appearance of the orbit on *x*-ray examination, and the normal white cell count are against orbital cellulitis. The absence of a primary lesion on the face or in the mouth is against cavernous sinus thrombosis. A syphilitic optic neuritis is not commonly unilateral, and in the absence of choroidal changes and unequal pupils this diagnosis is improbable, especially in view of the negative Kahn in the second case. The group of demyelinating diseases has to be considered. Disseminated sclerosis is the commonest cause of a unilateral retrobulbar neuritis, but does not produce proptosis. Furthermore, this disease is very uncommon on the West Coast. Dr. H. Thomas has neither seen nor heard of a case in 16 years' medical service on the coast, and Dr. Carmichael Wilson has seen only one case in Nigeria in 18 years' service. Neuromyelitis optica and Schilder's disease are ruled out by the subsequent history of the cases.

(*d*) Congestion can be venous or lymphatic. Venous congestion is ruled out by the absence of early fullness of the retinal veins. The association of lymphatic swelling and filariasis is well recognized in elephantiasis, although the mechanism is not quite clear. The filariae in most cases are *Wuchereria bancrofti*, but Strong reports cases due to onchocerciasis. Calabar swelling, an anaphylactic oedema, is associated with *Loa loa*, so there is a precedent for suggesting that onchocerciasis can produce lymphatic swelling. A direct block of the retrobulbar lymphatics by a host of microfilariae is possible, but since microfilariae are well tolerated as a rule by the tissues this is not considered likely. More probable is the theory that an anaphylactic oedema can be produced in the orbit as a result of *O. volvulus* toxins, and that such an oedema is the explanation of the syndrome of oedema of the optic nerve and of the upper lid, with proptosis and ciliary flush.

Summary

Two cases with proptosis, oedema of the lid, ciliary flush, and oedema of the optic nerve associated with onchocerciasis are described. One is believed to be the first case of onchocerciasis reported in a Gambian. It is suggested that the cause of the syndrome is an anaphylactic oedema caused by *Onchocerca volvulus*.

My thanks are due to Col. R. G. Gordon, officer commanding the 55th General Hospital, for his help and advice, and to Drs. Wilson and Thomas.

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THE NERVOUS COMPLICATIONS OF INFECTIVE HEPATITIS

BY

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The nervous complications which may arise during the course of infective hepatitis are by no means common. They occur occasionally in spirochaetosis icterohaemorrhagica, but they seem to be even rarer, judging from the literature, in the epidemic form of infective hepatitis.

Nervous Complications of Weil's Disease

Apart from such conditions as mild headache, restlessness, delirium, convulsions, and coma, which are due more likely to the general infection than to any actual involvement of the nervous system, the nervous complication most often met with in Weil's disease is that of meningitis. Yet, judging from reports of cases in the literature, this is of comparatively infrequent occurrence, despite the writings of some French physicians. Meningitis occurred, for instance, in only 3 of the 40 cases of this disease reported by Davidson and Smith (1936).

Meningitis may occur in Weil's disease with or following the jaundice. It may even be the prominent feature in this infection, the jaundice and haemorrhages being slight or even absent —"spirochétose méningée anictérique" of Costa and Troisier (1916, 1917). The cerebrospinal fluid is under pressure, and it may be clear or opalescent, with a fibrinous clot which forms on standing. There is a pleocytosis, with a predominance of the polymorphonuclear variety in the graver cases, lymphocytes in the less severe. Spirochaetes may be found in the fluid, and if the latter is injected into suitable animals jaundice and haemorrhages will generally occur. Eleven cases of meningitis of leptospiral origin, proved by the inoculation into guinea-pigs of the patient's blood or cerebrospinal fluid, have been reported by Costa and Troisier. Cochez and Fichet (1933) have published an account of three similar cases with, however, no obvious signs of jaundice. Inoculation of the urine, blood, and cerebrospinal fluid into guinea-pigs caused jaundice and haemorrhagic lesions in the liver and lungs, and spirochaetes were found in the livers. Agglutination reactions against *L. icterohaemorrhagiae* were positive in the sera of all three patients. These authors emphasize the following additional clinical signs as particularly characteristic of this disease: mild meningeal signs, labial or palpebral herpes, and conjunctival infection. Troisier and Boquien (1933) have examined a number of case histories of patients suffering from meningitis of leptospiral origin, accompanied with, or without, jaundice. Schüffner and Walch-Sorgdrager (1940) had, up to 1936, collected 25 case reports of meningitis from among 312 Dutch patients suffering from Weil's disease. According to their experience, meningitis is commoner in this infection without jaundice; so it seems advisable that serological tests should be carried out in all cases of non-pyogenic meningitis in which the aetiology is obscure. According to the reports of most

authors, nervous symptoms tend to appear during the acute phase of the disease, although Davidson and Smith (1936) and Murgatroyd (1937) have each reported a case of Weil's disease in which meningitis occurred at least four months after the jaundice.

Recently I have seen a patient with Weil's disease in whom the illness started with violent headache and vomiting. Two days later jaundice appeared. On admission to hospital there was slight stiffness in the muscles of the neck. The cerebrospinal fluid was under increased pressure and was pale yellow in colour. It contained 75% neutrophils and 25% lymphocytes, and 80 mg. of protein per 100 c.cm. The gold curve was normal. No spirochaetes were found in the fluid. There was marked hepatic and renal impairment. Nevertheless this patient made a good recovery, both clinically and biochemically.

Whereas in Weil's disease meningitis may not be quite so uncommon as is generally supposed, yet the involvement of the nervous parenchyma itself is decidedly rare. Mortensen (1940) was able to find only four cases in the literature in addition to one of his own. Two of these patients suffered from peripheral neuritis in the lower limbs, the others with myelitis. His own case was one of jaundice which at first was thought to be due to Weil's disease; but the serological reactions were abnormal, so that it was more likely to be due to an infection with a leptospira of a different type. Three weeks after the beginning of the illness signs of meningitis appeared, together with a transitory flaccid paralysis of the lower extremities. The patient made a good recovery. The same author has found in the literature the reports of a few cases of Weil's disease with paralysis of the third, sixth, and seventh cranial nerves.

Nervous Complications in Epidemic Hepatitis

Nervous complications seem to be uncommon in epidemic hepatitis, although perhaps if a special watch were kept their occurrence might be found to be more frequent than the literature would suggest. As in leptospiral infections, the least uncommon of these nervous complications is meningitis.

Fiessinger (1924) has reported the case of a young man who developed meningitis. Less than a week after the onset jaundice appeared. He was thought to be suffering from Weil's disease, but spirochaetes were never found in the blood, nor in the urine or cerebrospinal fluid; and although inoculation of some of the patient's blood into a guinea-pig caused the death of the animal, jaundice did not occur, nor were haemorrhages or spirochaetes found in the internal organs. The patient's serum did not agglutinate leptospirae. Among the 300 cases of epidemic hepatitis of which an account was published by Ford (1943) there was only one that showed signs of meningitis. Waring (1943) has reported a case of this type of hepatitis in which meningitis started five days after the onset of jaundice. The cerebrospinal fluid was opalescent and under increased pressure. There were 544 cells per c.mm., chiefly lymphocytes, together with an increased amount of globulin. This patient made a good recovery.

Lemierre, Lhermitte, and Bernard (1929) have related an interesting case of a young man who complained of acute abdominal pain and vomiting for which no cause was found on laparotomy. Shortly afterwards acute painful flaccid paralysis developed in the lower limbs, to be followed in a short time by a similar condition in the upper limbs. The right trigeminal and facial nerves then became affected, together with loosening and falling out of the teeth. Meanwhile, jaundice developed, which progressed until death occurred from asphyxiation due to paralysis of the muscles of respiration. At necropsy areas of degeneration were found in the trigeminal, vagal, and hypoglossal nuclei; also in the anterior horn cells of the spinal cord. But although the liver was enlarged, no appreciable changes were found. Lemierre has reported a case of a patient who developed spastic paraplegia during an attack of epidemic jaundice.

Lelong and Bernard (1935) have had under their care during a local epidemic a girl of 14 suffering from infective jaundice. Four weeks after the beginning of her illness polyneuritis developed in the upper and lower limbs, starting distally and spreading upwards. Sero-agglutination tests to leptospirae were negative; nor was the organism found in any of the body fluids. Complete recovery eventually took place. Newman (1942), describing an outbreak of infective hepatitis, noted the occurrence of mild meningitis and neuritic signs in some patients; while Brain (1943) has reported the occurrence of convulsions, hemiplegia, and mild polyneuritic signs which preceded the onset of epidemic jaundice. Out of 170 patients suffering from epidemic infective hepatitis studied by Cameron (1943) in Palestine, only five showed nervous complications. Two developed mental disturbance, which was attributed to hepatic insufficiency. In the other three patients temporary ocular difficulty with accommodation occurred. All made a good recovery. No case of meningitis was seen by that author.

Judging from the various accounts of cases published in the literature and from one's own experience, the prognosis of nervous complications in infective hepatitis seems to be good.

Two Cases of Epidemic Hepatitis with Parenchymatous Disease of the Nervous System

Case 1.—A housewife aged 28 was admitted to the Derbyshire Royal Infirmary on Jan. 28, 1943, complaining of weakness of the arms and legs, together with jaundice. At the time there was an epidemic of jaundice in the town. She had not come into contact with chemicals nor did she use hair-dye or cosmetics. She was accustomed to an ordinary mixed diet and showed no signs of dietetic insufficiency. On the night of Jan. 7 she went to bed with a cold and headache. The next day she complained of numbness and weakness in the fingers, then in the hands and forearms, and shortly afterwards in the feet and legs. A week later jaundice was noticed. The urine was dark in colour; there was no diarrhoea, and no alteration of colour in the stools.

On examination she was a well-nourished woman; cerebration was good, there was no anaemia, and jaundice was pronounced, being more so on the face, chest, and abdomen than on the lower limbs. The lower edge of the liver was felt three fingerbreadths below the costal margin. The spleen and lymphatic glands were not enlarged. There was a marked symmetrical weakness and wasting of the muscles of the hands, forearms, and to a lesser extent of the arms and shoulder-girdles, together with loss of reflexes. A similar condition, though less pronounced, was present in the lower limbs. A slight degree of objective sensory loss was found over the hands and feet. The functions of the bladder and rectum remained unaffected. Nothing abnormal was found in the other systems. On most evenings for the first three weeks after admission her temperature was raised to between 99 and 101° F. The urine contained bile pigment but no bile salts. About the seventh week a small amount of albumin was present for a short time. The cerebrospinal fluid was examined two days after admission. It was yellow in colour, but showed nothing else abnormal. The blood contained 4 mg. of bilirubin per 100 c.cm. The serum gave negative agglutination tests to *L. icterohaemorrhagiae*. The leucocyte count was never over 9,000 per c.mm. The jaundice cleared up within about six weeks of admission, and a month later the polyneuritis had improved sufficiently for her to leave hospital, and to attend for treatment as an out-patient. Subsequently she made a complete recovery.

Case 2.—An R.A.S.C. driver aged 24 was admitted to hospital in Persia during Feb., 1943, suffering from epidemic hepatitis. He told me that this condition was common in that country. He was discharged to duty eight weeks later. On April 28 he suddenly felt giddy and sick and complained of headache. On readmission to hospital the next day he was feverish and drowsy. A few days later, on waking up, he was unable to move his left upper limb, and his left leg was weak. On examination he was found to have a left hemiplegia of the upper neurone type, together with a left homonymous hemianopia. Nothing abnormal was observed on examination of the rest of his nervous system, nor in his cardiovascular or any other system, with the exception that his blood pressure was only 100/55. Two weeks later the cerebrospinal fluid was normal, although the pressure was not given. The Wassermann reaction in the blood and cerebrospinal fluid was negative. The white cell count in the former was 10,500 per c.mm. Nothing abnormal was ever discovered in the urine. He was invalided home and admitted to the Derbyshire Royal Infirmary last September. He still showed signs of a left hemiplegia with left homonymous hemianopia, although both are now improving.

Discussion

From the paucity of the sporadic reports of nervous complications occurring during infective hepatitis, it can be argued that there may be a possibility of coincidence and that two separate diseases may coexist. On the whole, however, the probability is that the hepatitis and the complications in the nervous system are but two phases of the same disease. It is, of course, well known that certain pathogenic viruses, such as that of poliomyelitis, have a selective action on the nervous tissue. Other viruses, such as those causing measles, chickenpox, mumps, atypical pneumonia, etc., may under certain circumstances infect the nervous system. Now, although definite proof that epidemic hepatitis is caused by a virus infection is still lacking, yet during the last few years evidence that it is so caused has been accumulating. Thus, if this assumption be correct, it is not unreasonable to suppose, or even to expect, that nervous complications could occur in some of those who suffer from epidemic jaundice. Another possibility is that lowered resistance of the liver in infective hepatitis may predispose to infection by the same or a different virus in other parts of the body. During the past

year, for instance, I have seen herpes develop in several patients who were suffering from infective hepatitis.

Judging by the analogy of the affinity of the *Spirochaeta pallida* for nervous tissue even in the early stage of syphilis, it is not unreasonable to assume that the nervous system may also be affected by other spirochaetes, such as *L. icterohaemorrhagiae*, during the course of its invasion.

If the association of nervous complications with infective hepatitis is kept in mind, it may be found that this combination, especially in cases in which the jaundice is not obvious, is not so uncommon as is at present supposed. Therefore, all cases of so-called "aseptic meningitis" of doubtful aetiology, or polyneuritis without obvious cause, should be carefully scrutinized for the presence of latent jaundice. The association of jaundice with nervous complications may possibly be further exemplified by such a condition as progressive lenticular degeneration (Wilson's disease), in which cirrhosis of the liver and a varying degree of jaundice occur together with involvement of certain parts of the brain, especially the corpus striatum.

Summary and Conclusions

The occurrence of nervous complications in Weil's disease and in epidemic hepatitis has been discussed.

Meningitis is the nervous complication most commonly met with in both diseases.

Disease of the nervous parenchyma, though it does occur, is rare in both infections.

Meningitis occurring in a patient suffering from Weil's disease has been described; also two cases of epidemic hepatitis, in one of which polyneuritis developed. In the other, hemiplegia, presumably due to an encephalitis, occurred within a few weeks of the attack of epidemic hepatitis.

While the possibility of coincidence has been kept in mind, the probability is that the hepatitis and the nervous complications are but two phases of the same disease.

This combination may be found to be not quite so uncommon as was formerly supposed, especially if the presence of latent jaundice is looked for in all cases of infective nervous disease of doubtful aetiology.

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SURGICAL PROBLEMS IN FORWARD AREAS

BY

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The scope of surgery in forward areas has advanced in recent times to more than life-saving measures and heroic ablations, often in vain. In their place there is, it is true, major surgery with a high proportion of amputations; but resuscitation, chemotherapy, and new views on after-treatment have altered the principles and results out of all recognition. Difficulties, of course, remain that experience alone can solve, and when not to operate and when not to evacuate are among the most striking. Evacuation, indeed, controls the whole problem; and familiarity with the mode of transport and distances involved should be an essential part of a forward surgeon's information. Many a successful technical procedure has been ruined by premature evacuation, many a wounded man set back further by a long ambulance ride than improved by the resuscitation not long preceding it. Cases of burns and thoracic and abdominal injuries illustrate this point well.

The surgeon in forward areas has admittedly the easiest task in one respect, for the field is new ground, surgically speaking, and the line of approach determined by the wounding agent. The position of the wounded man at the time of injury and the type of missile may, however, modify this appreciably. Buttock wounds, in particular, demonstrate this fact, no less than 10 to 15% involving the peritoneal cavity. With regard to the type of missile, coincident blast is a complicating factor too easily forgotten, as that of the lower lobes of the lung in wounds of the upper abdomen. Gross external with less severe internal damage by mortar wounds is less likely to mislead than the converse with shell or rifle wounds. In all types, however, the through-and-through wound may well be the problem. This, *par excellence*, is the wound to be left alone, especially when of the "gutter" type in subcutaneous tissues. Wounds of the right upper quadrant of the abdomen, involving the liver only, may also fall into the same category.

The Abdomen

Abdominal wounds, in general, are still prognostically the worst, an all-in mortality of 50% being my experience and that of numerous surgical colleagues in the North African campaign. This is high, perhaps too high; but many of the factors determining it are beyond the surgeon's control. The interval between receipt of injury and operation is still the most important, and it is reasonable to suggest that every hour after six is more serious than two before it. Civilian figures for mortality of operations for perforated peptic ulcer provide a close parallel. (In the abdominal injuries dealt with by me in forward areas 10 to 12 hours was the average time between wounding and operation.)

Once the patient reaches the operating centre, however, many problems arise—perhaps more in the five or six days after operation than at the operation itself. Given blood instead of plasma, which is no substitute in cases with mesenteric bleeding, the decision and moment to operate are not, as a rule, difficult to determine. The approach then is in the line of the entry wound, and a buttock wound, for example, should be explored first before proceeding to deal with the intraperitoneal damage complicating it. At times, as a result, laparotomy will be found unnecessary; for abdominal rigidity with these, as with thoracic wounds, may easily be found misleading.

The importance of searching the alimentary canal from stomach to rectum has been stressed by numerous observers, and a patient too ill to stand this is too ill for operation. The exceptions are few enough to ignore. With this proviso, the plan should then be clear, and the task usually involved is exteriorization of the large gut and suture or resection of the small. The higher the lesion, of course, the better the prognosis. Even then, however, coincident injuries to other parts of the body may turn the scale, as it has been the exception rather than the rule to have to deal with a single wound. Too often, in fact, the wounded man provides an operation list in himself.

This raises the interesting subject of abdomino-thoracic wounds, which account for 20% of all wounds of the abdomen. These are more serious on the left than on the right side, but experience has shown that they are not necessarily graver than simple wounds of the abdomen. The abdominal injury in these cases is likely to be high and the bowel may be intact, the liver or spleen being the only viscus damaged. Simultaneous renal injury may occur—one notable case in the series under discussion necessitating nephrectomy, splenectomy, and closure of a large pleural defect, without untoward result. A successful cholecystectomy and duodenal repair has also been done for a right-sided abdomino-thoracic injury.

Post-operative continuous gastric suction and measures designed to prevent ileus repay all the care they demand; but a proportion of disappointing results remain which, at times, seem hard to explain. Why, for example, should pulmonary oedema have proved fatal in gunshot wounds of the spleen where no more than three pints of blood or plasma had been given in the 24 hours after operation? Why too, unless hypovitaminosis is the explanation in an army in the field, should a plastic peritonitis be the cause of death three weeks or more after operation? A typical example occurred in a man requiring resection of four feet of ileum and a colostomy for visceral injuries from a machine-gun, seen within five hours.

Evacuation to a general hospital was delayed for more than a fortnight, and the patient died nearly three weeks after this.

The holding of patients for at least ten days after laparotomy has made a vast difference to results, and by this time the issue is usually clear. Even then, however, evacuation by air or by slow stages is the method of choice.

Chest Wounds

These are not, as a rule, difficult to deal with in forward areas, the minimum possible being done after closure of open wounds of the pleura. In a series of more than 60 cases only one required operation for bleeding from an intercostal vessel producing a haemothorax. Repeated aspiration in this instance failed to prevent displacement of the apex beat to the fifth right interspace three inches from the midline. Surgical emphysema likewise has necessitated intervention only once in the same series.

Limb Injuries

Sixty to eighty per cent. of all wounds involve the limbs, and the lower more often than the upper. Immobilization of a standard type simplifies the problem in these cases. Illustrative and valuable examples are the Tobruk plaster for fractures of the femur and thoraco-brachial plaster for the humerus. Plaster cuffs for amputation stumps have also proved useful. Coincident injuries, such as a Pott's fracture with a fractured femur, can complicate the picture appreciably.

Of all fractures perhaps those of the upper third of the femur must be regarded as the most dangerous, associated in dispatch riders, who are the commonest victims, with head injuries which may also be grave. The value of radiographs in these as in all fractures in forward areas has too often been exaggerated, as immobilization and not realignment is the surgeon's task. Excision of the wound is of course required, and difficulty is often experienced in distinguishing bone fragments from foreign bodies. The errors, however, can easily be rectified when definitive treatment is carried out after evacuation.

Amputations, as already stated, are numerous, and primary suture is no more admissible here than in any other site. Blood transfusion in these cases is usually vital, and for double amputations imperative. One such case did well although operated on 15 hours after injury with massive destruction of one leg below the knee and gas gangrene in the other.

Gas gangrene has been encountered more than a dozen times in 500 cases, and the interval since wounding has twice been less than eight hours. One case oddly enough presented coincident maggot infestation, and the wound was (as usual in these cases) very clean. Excision of the affected muscle group proved effective. The diagnosis in the majority of cases, however, is made not from an inspection of the wound but from the patient's general appearance—the sallow, vivid look, incipient delirium, and restlessness being characteristic features. The presence of gas in the wound is unusual and has been noted only once. Anaerobic gangrene, in fact, might be a more descriptive and apposite term. It may even be fair to say that the presence of gas in gas gangrene, so-called, is as useful in establishing the diagnosis as skeletal secondaries in carcinoma of the breast.

Chemotherapy in these infections is an adjunct to and not a substitute for radical surgery. Buttock, thigh (lateral aspect), and calf wounds, for anatomical reasons, are those most apt to develop gas gangrene, and prophylactic serum for all of them may well have reduced the incidence of this complication. There again postponement of evacuation for some while after operation is of the greatest value. In these cases, as in large wounds with gross sepsis, secondary haemorrhage is the real danger of the convalescent period. When it occurs nothing but ligation of the main vessel involved is likely to be effective.

Burns

Routine treatment with sulphanilamide and petroleum jelly gauze after gentle but thorough cleansing with saline is still the method of choice, and it is the anaesthetist rather than the surgeon whose task is difficult. General agreement will probably be expressed with the danger of pentothal in extensive burns as in head injuries. Intravenous morphine has, in fact, proved much more satisfactory, and can be used with advantage for subsequent dressings at five-day intervals.

Conclusions

Evacuation controls the problems of surgery in forward areas.

The number rather than the nature of wounds may be the most important prognostic feature.

The all-in mortality of abdominal wounds is 50% or thereabouts.

Abdomino-thoracic wounds are not necessarily more serious than abdominal.

No patient should be evacuated until ten days after a laparotomy.

Radiographs of fractures in forward areas are unnecessary in nearly all cases.

"Anaerobic gangrene" is suggested as an alternative to "gas gangrene." The presence of gas is a late manifestation.

Intravenous morphine is the anaesthetic of choice in the treatment of burns.

Medical Memoranda

Severe Granulocytopenia from Sulphaguanidine

A recent M.R.C. Memorandum (1943a) reports that sulphaguanidine has shown little toxicity to date, although nausea, drug-rash, and fever have occasionally been noted. The occurrence of severe granulocytopenia in a young adolescent treated for Sonne dysentery with moderate doses of this drug is therefore of some importance.

Case Record

A girl aged 15 who had complained of headache, vomiting, and diarrhoea since the previous day was admitted to an E.M.S. hospital with a pyrexia of 101.2° and tenderness over the course of the colon. Her general condition was good and the frequent watery stools contained no blood or noticeable excess of mucus. Desoxycholate cultures produced a heavy growth of *B. dysenteriae* Sonne.

Sulphaguanidine was begun on the third day of the illness, 1.5 g. being given three times daily in the first three days. By this time the temperature had become normal and the stool cultures negative, and the dose was reduced to 1 g. three times daily, which was continued for four days. Thus a total of 25.5 g. of sulphaguanidine was given in seven days.

Six days after the drug had been discontinued the stools became relaxed and the cultures again became positive. A second course of sulphaguanidine was begun eight days after the conclusion of the first, 1.5 g. being given four times daily. After only two doses the temperature, previously normal, rose to 100.2° and there was complaint of a feeling of lassitude and slight headache. The temperature showed morning remissions to normal, but the malaise persisted, and on the third day, when a total of 15 g. had been given, the second course of sulphaguanidine was stopped. On this day the total leucocyte count was 5,500 per c.mm., of which 64% were polymorphs. The following day the temperature showed no morning remission and the leucocytes had fallen to 4,100 per c.mm., of which 38% were polymorphs. A day later the pyrexia reached 103.2° and the leucocyte count was 2,000 per c.mm., of which only 10% were granulocytes.

Sodium pentnucleotide was given in 10-c.cm. doses three times daily for four days, and twenty-four hours after starting it the leucocyte count had improved to 4,000 per c.mm. Of these 38% were of the granulocyte series, 4% being myeloblasts, 16% myelocytes, and 18% polymorphs. Thenceforth there was gradual improvement, but six days elapsed before primitive white cells ceased to be present in fair numbers and before the temperature became normal. The red cells were not affected. There were no necrotic lesions and no petechiae.

Comment

Sulphaguanidine is used in the treatment of bacillary dysentery because of the local bacteriostatic action of the proportion of the total dose given which reaches the colon unabsorbed and is finally excreted in the faeces. Attention has centred on this action, and it requires to be emphasized that approximately two-thirds of the amount administered by mouth is absorbed before the ileo-caecal valve is reached (M.R.C. Memo., 1943b). That relatively low blood concentrations occur with this sulphonamide is due in far greater measure to rapid elimination in the urine than to poor absorption from the intestine (Firor and Poth, 1941). The possibility of agranulocytosis resulting from the administration of sulphaguanidine therefore merits attention, especially as the drug is often given to large groups of cases in epidemics, when regular checking of the granulocyte count may be impracticable.

That agranulocytosis is liable to occur during second courses of treatment has frequently been observed with other sulphonamides. In the above case the early onset of headache, lassitude, and slight pyrexia after the resumption of sulphaguanidine is suggestive of sensitization by the first course of the drug.

I wish to thank Dr. W. A. Bullough, County Medical Officer of Health, for permission to publish this report.

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Megalocytic Anaemia in a Young Vegetarian

Trowell (*Lancet*, 1943, **1**, 43) of the Uganda Medical School reviewed the subject and literature of deficiency anaemias of malnutrition, with special reference to macrocytic anaemia. The present case is of interest in showing, although far from fully investigated, certain unusual features in a type of anaemia apparently uncommon in this country.

CLINICAL HISTORY

On Aug. 5, 1941, a lorry-driver, a single man aged 20, was referred to the department by Dr. J. Strachan of Leyland, for a blood count. In April, 1941, three of his teeth had been extracted because of soreness of the tongue and mouth. In May, tiredness, breathlessness, and loss of colour were first noticed; and these, the only symptoms, steadily increased. For 15 years he had been practically a vegetarian. For breakfast he had bread-and-butter with either salad of lettuce and tomato, or jam, treacle, or marmalade; and for lunch bread-and-butter, potatoes in gravy with peas or carrots, rice pudding; meat was taken at most as scraps in a weekly olla podrida. His tea was similar to the breakfast, with home-made cakes, biscuits, or fruit pies; and his supper consisted of bread-and-butter. The patient had never been fond of cheese, bacon, meat, eggs, or liver, and only took milk in tea, coffee, or cocoa at each meal. His parents, sister, and two brothers were all well and were not vegetarians; there was no family history of anaemia.

Examination.—Well-built and well nourished; marked pallor of mucosae; tachycardia; spleen impalpable, reflexes normal; tongue slightly smooth at the edges; onychia not marked. Blood: Hb, 35% (Haldane); red cells, 1,400,000 per c.mm.; C.I., 1.25; reticulocytes, 4.5%; mean diameter of red cells, 8.2 μ (diffraction method); mean corpuscular volume, 114 cu. μ. White cells, 10,600 per c.mm.; differential count, normal. Red cells showed variability of size, shape, and staining; but no nucleated or stippled forms were seen. Plasma bilirubin, 0.85 mg. per 100 c.cm.; urea, 35 mg. per 100 c.cm.; W.R., negative. The urine showed no excess of urobilin.

The uncommon diet was viewed with suspicion, but the patient was unwilling to come into hospital, and was treated in bed at home as a case of presumptive pernicious anaemia. Between Aug. 6 and 29 he received injections of anahaemin in doses of 6 c.cm., 4 c.cm., and 8 of 2 c.cm. (total, 26 c.cm.).

Progress.—On Sept. 2, 1941, a gruel test meal revealed histamine-fast achlorhydria. The blood count showed: Hb, 85%; red cells, 4,400,000; C.I., 0.9; mean cell diameter, 7.5 μ. From that date until July 4, 1942, the patient received an injection of 2 c.cm. of anahaemin fortnightly. Counts done in Dec., 1941, and in Feb., April, and June, 1942, showed haemoglobin never less than 95% and not fewer than 5,000,000 red cells per c.mm., with a mean diameter of not more than 6.9 μ. Since Aug., 1941, a normal amount of meat, bacon, and milk had been taken in the diet. In July, 1942, it was decided to stop the injections and watch for a relapse. On five occasions between Aug. 4, 1942, and Jan. 18, 1943, haemoglobin was not less than 100%, nor the red cells below 5 millions. On Jan. 22, 1943, a test meal of 50 c.cm. of 7% alcohol showed a spontaneous secretion of free hydrochloric acid (from 8 to 12 c.cm. N/10 NaOH per 100 c.cm. of juice in the first three samples, rising after subcutaneous injection of 1 mg. of histamine to from 50 to 60 c.cm.), and the diagnosis of pernicious anaemia was abandoned. Fragility of the red cells was found to be normal at this time. Regret that marrow films were not examined before and after starting liver treatment, and a more delicate therapeutic experiment planned, is tempered by the patient's pleasure at his quick return to full fitness, and the prospect of relief from lifelong treatment. On Nov. 2 the patient felt and looked very well. His haemoglobin and red cell diameter were normal; and his reticulocytes numbered less than 1%.

COMMENTS

Points of note are: (1) The patient's good state of nourishment, indicative of the selective "anaemia-producing" action of his defective diet. (2) The early histamine-fast achlorhydria, but with a normal test meal 5 months later: Trowell found free HCl "almost always present." (3) The rapid improvement of the anaemia following anahaemin in moderately large though not massive dosage.

I wish to thank Drs. Strachan and F. B. Smith for their co-operation and for permission to publish.

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Reviews

DISEASES OF THE BONES

Medical Clinics on Bone Diseases. A Text and Atlas. By I. Snapper, M.D. (Pp. 225; illustrated. £3 7s. 6d.) London: H. K. Lewis and Co. 1943.

Twenty years ago editors of Systems of Medicine were apologetic in approaching a contributor to write the section on diseases of the bones, for they seemed such a disconnected collection of conditions. Now the position has changed completely. Recklinghausen's disease has been proved to be of endocrine origin, and this has reacted on our interpretation of bone lesions in long-standing renal insufficiency. Osteomalacia and rickets have vindicated their status as deficiency diseases. The relationship of leukaemia, multiple myelomata, and hyperthyroidism to the skeleton has proved to be closer than was supposed. Lipoid granulomatosis affecting the bones has been recognized as the cause of new syndromes. *X* rays and biochemistry have greatly helped in formulating these new points of view, as to a lesser extent has the technique of sternal puncture. All this has put the earlier observations of Paget, Bence-Jones, Davies-Colley, and von Recklinghausen into their proper perspective as part of a growing synthesis. To that synthesis the present volume makes a sumptuous contribution, with admirable clinical descriptions and discussions, a bibliography, and striking illustrations.

We have come to realize that, whereas a parathyroid adenoma may be the cause of a profound disturbance of skeletal structure, it is also true that hyperplasia of the parathyroids may be a secondary and compensatory effect, as maintained by Erdheim, in various diseases. Thus, in osteomalacia they enlarge to deal with the excess of calcium and phosphorus set free by the destruction of bone, while chronic renal failure, if accompanied by acidosis, as it often is, stimulates enlargement of these glandules. This interrelationship between the kidney and the parathyroids is further exemplified by the renal calculi composed of calcium salts which so often form in hyperparathyroidism. Indeed, latent hyperparathyroidism has been held to be responsible for between 0.5 and 2% of all renal calculi. The enlargement which may follow a complete biliary fistula is presumably to compensate for the consequent ill-absorption of the fat-soluble vitamin D. Fortunately the tendency to remove the parathyroids for the relief of osteo-arthritis or otosclerosis has passed.

Full justice is done to the pioneer work of J. P. Maxwell in China on the essential unity of osteomalacia and ante-natal and post-natal rickets. The way in which the social customs of that country lead to severe foetal and benign infantile rickets and to the prevalence of osteomalacia—a rare disease in Europe—is discussed in an interesting manner. Complicated syndromes may also arise by the superposition of avitaminosis on pre-existing bony disease. It has been recognized that in Paget's disease there is a notable increase in phosphatase, although the metabolism of calcium and phosphorus is normal, and the explanation seems to be that this augmentation occurs under any condition in which there is hyperfunction of the osteoblasts. It is indeed a non-specific sign. The treatment of Paget's disease by carefully controlled injections of parathormone, followed by ultra-violet rays, seems to hold out prospects in a hitherto incurable disease. Leontiasis ossea is regarded as a syndrome of the same order.

Lipoid granuloma may form islands of foam cells loaded with cholesterol esters in fibrous tissue, but when it attacks bone it has a predilection for the skull and pituitary from which the syndrome of Hand-Schüller-Christian disease results. In Gaucher's disease a special lipoid—kerasin—is abundant in the bone marrow, so that sternal puncture has become an important diagnostic technique in its recognition. The concluding chapter on multiple myeloma indicates that some connexion exists between it and myeloid leukaemia, and that the

separation which has been made between different diseases of the blood-forming organs has been too rigid.

The whole work is a fascinating and important study, which it would be difficult to praise too highly, for it is a model of its kind which reflects great credit on all concerned in the production.

AN ENCYCLOPAEDIA OF HISTOLOGICAL METHODS

Microscopic Technique in Biology and Medicine. By E. V. Cowdry, Professor of Anatomy, Washington University, St. Louis. (Pp. 206. $4.00 or 22s.) Baltimore: The Williams and Wilkins Company; London: Baillière, Tindall and Cox. 1943.

This new work by E. V. Cowdry is entitled *Microscopic Technique in Biology and Medicine.* Except in so far as it deals with the electron microscope, fluorescence microscopy, and other methods of observation or illumination, the book does not, as its title might suggest, concern itself so much with examining material microscopically as with preparing it for examination. It is in fact a very valuable encyclopaedia of histological methods, listing alphabetically stains and other reagents and materials with the appropriate methods for them, each being described succinctly, often with references to original papers for further information. It deals with rather more than histology in the ordinary sense, since a good deal of space is devoted to the direct observation of living tissue, and instructions are also given for demonstrating bacteria, protozoa, fungi, and certain animal parasites not only in tissues but in body fluids. Its scope on the histological side is wide, including several columns on the microscopical location of vitamins, and several pages on the use of radio-active isotopes as tracer substances. Not only methods but a good deal of underlying theory come in for consideration: the qualities of things are explained, and purely technical items are interspersed with sections on such theoretical matters as oxidation-reduction potential. Introductory chapters deal with the choice of methods in a wider sense, with laboratory organization and the standardization of stains.

This should be a very valuable bench book to several kinds of worker: for anyone with a true pride in beautiful microscopical preparations it offers many possibilities which he will be anxious to explore.

MAXILLO-FACIAL INJURIES

Supplement to the Dental Treatment of Maxillo-Facial Injuries. By W. Kelsey Fry, M.R.C.S., L.D.S.; P. Rae Shepherd, L.D.S.; Alan C. McLeod, D.D.S., L.D.S.; and Gilbert J. Parfitt, M.R.C.S., L.D.S. With Section on Fractures of the Middle Third of the Face by A. H. McIndoe, M.S., F.R.C.S., F.A.C.S. (Pp. 494; illustrated. 21s.) London: Blackwell Scientific Publications Ltd. 1943.

A review of the parent book to this volume appeared in the *Journal* on June 19, 1943. The supplement contains the case histories and many photographs and radiographs of the most instructive of the cases that have been under the care of the team of dental surgeons at the clinic at East Grinstead. These two books present the most comprehensive treatise on the subject of any published work since the war, and praise must be given to the authors not only for their painstaking conduct and treatment of the cases they have looked after but also for the general conclusions and principles of the treatment which they have been able to lay down for the guidance of dental surgeons who are also undertaking this work.

The authors cover a wide field. To the dental surgeon who has not had the opportunity of treating cases arising from the war, but who occasionally sees civilian fractures of the mandible, the most useful contribution is the insistence on the separate cap splint method whenever there is any displacement, and the cases described show the great advantage of this over the more universal method of using the prearranged cap splint. The difficulties of the edentulous posterior fragment are well reviewed, though the methods employed are complicated and require the facilities of a specialized hospital. Mr. McIndoe contributes a section on the fractures of the middle third of the face, and the book ends with cases illustrating first-aid treatment and certain complications.

The whole text is simplified by the really excellent photographs, showing not only the progress of the patients but the details in the construction of the various appliances used.

Notes on Books

Dr. R. D. LAWRENCE's book *The Diabetic Life,* first published in 1925, has now reached its 13th edition (J. and A. Churchill; 10s. 6d.). A Wartime Supplement, occupying the first thirteen pages of text, deals with the problems and special difficulties concerned with food rationing and distribution of insulin which the war has imposed upon the diabetic and his doctor. In his preface Dr. Lawrence writes: "By constant revision this book had become, I felt, rather a patch-work affair. So now it has been rewritten, and I have pruned much dead wood and ingrafted fresh in this edition. Its main object is still to be a practical guide in the treatment of diabetes, and theory is kept to a minimum."

The first comprehensive set of recommendations on post-war housing was published on March 24 in the Scottish Housing Advisory Committee's report *Planning Our New Homes* (H.M. Stationery Office; 3s.). The committee, under the chairmanship of Mr. Joseph Westwood, M.P., Joint Parliamentary Under-Secretary of State for Scotland, was asked in 1942 by the Secretary of State to report on the design, internal planning, standard of construction, and layout of new houses and on the provision of furniture by local authorities in municipal houses. This report was presented to the Secretary of State in November last, and Government action on a number of urgent recommendations has already begun. The committee recommends a "three-stage" programme to meet the problem of Scotland's housing needs. The bulk of this report is devoted to a long-term post-war housing policy. It recommends radical improvements in standards of living space in houses of all types, and insists that very great care should be taken to make the house comfortable and convenient.

The report on the work of the League of Nations in 1942–3 by the Acting Secretary-General has now become available in London (George Allen and Unwin, 40, Museum Street, W.C.; 2s.). It reviews the manifold activities of the League in wartime and in preparation for the post-war period. It shows the important work being done, even in wartime, by the international organizations. The fact that the headquarters of the League are situated at Geneva has given it the opportunity of observing much of what is taking place in Europe; and its branches at Princeton, U.S.A., and in London bring it into direct relation with a variety of technical questions closely concerned with current events. The work performed and the publications issued in regard to economic and financial questions, refugees, epidemics, health, nutrition, and narcotic drug traffic are of outstanding value.

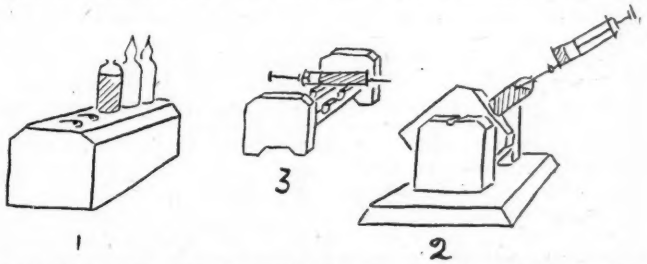
Preparations and Appliances

ANAESTHETIC REQUISITES

Major J. FRAULO, R.A.M.C., writes:

To-day, and even more so in the coming months, the need for speed in the preparation of anaesthetics is obvious. An operating period consisting of numerous short cases can be completed much more quickly and easily if the anaesthetist has all his material ready at hand.

Since pentothal is used in the majority of cases, the devices illustrated herewith were made to facilitate the anaesthetic procedure. They have been in use for over a year, and since they can be made of wood in a short time by any amateur carpenter,



and since they can be used by any trained orderly, it was thought worth while to publish them.

Fig. 1 shows an ordinary block of wood drilled to hold five or six ampoules of pentothal. After filling one ampoule with water, the orderly transfers it to the hinged wooden block shown in Fig. 2. This hinged block should be weighted at the lower end so that the ampoule is normally held in a vertical position. When filling, the ampoule is tilted to the required angle, and the entire content is sucked up with ease. Fig. 3 is merely a wooden rack on which several fully charged syringes are laid.

These devices should be of assistance in any clinic where intravenous therapy is employed—e.g., varicose veins and venereal disease.

THE OPHTHALMIC SURGEON AND THE OPTICIAN

BY

J. P. SPENCER WALKER, M.A., B.M., B.Ch.

Hon. Surgeon, Sussex Eye Hospital, etc.

The Problem

Owing to circumstances which need not be gone into now, for we must look forward and not back, a curious and difficult situation confronts us. In the care of the eye the public find that there are two main groups who offer their services—namely, the ophthalmic surgeons and the sight-testing opticians. I need not go over once more the well-trodden ground of the rival groups, but will content myself with suggesting that up to now our approach, as medical men, to this problem has been wrong. The vast majority have said, or have not contradicted those who have claimed to be their spokesmen, that they will have nothing to do with the sight-testing optician, and all plans that have been tried or suggested have been framed in opposition to him—for example, the National Eye Service sponsored by the National Ophthalmic Treatment Board. This implacable attitude has got us nowhere. One reply to this attitude has been an attempt by the sight-testing opticians to get the Government to form a Register; and another is that if sight-testing by opticians is abolished, men who have taken considerable trouble to study optics and to work for a diploma will lose their means of livelihood. They have made themselves skilled in one occupation; what are they to do if they may not exercise their skill?

Our problem is therefore, How can we give employment to these men, and at the same time give the best service to the public? Can we produce a plan, which can be used whatever form the medical service of the country may take? I submit a plan for consideration.

The Plan

The ophthalmic surgeon has his well-defined abilities and duties, and the optician his, and there is no essential need for them to be in opposition; but rather they should be, and really are, complementary to each other. The ophthalmic surgeon is concerned to a large extent with the physiological and pathological defects of the eye, and the optician with the appliances used to correct certain of these defects. Thus in a well-ordered scheme both of them should be able to play their part without trespass.

In the plan which I am putting before you the following persons will have their place: the ophthalmic surgeon, the optician, the orthoptist, and the nurse. First we must consider registration. The ophthalmic surgeon is provided for already in his qualification and registration as a medical practitioner. I suggest that the optician in future should receive a diploma from an "Ophthalmic Opticians' Council," which should be composed of opticians and ophthalmic surgeons (in a proportion to be settled later, when the principle of the plan has been accepted), who will be responsible for the training and examination for the diploma as well as for registration. On receiving his diploma the optician will become a medical auxiliary. At first an optician holding a diploma from a body now in existence would be registered by the "Council," but after the starting of the new plan these bodies would cease, and all new candidates would receive their diplomas from the new Council. The orthoptic trainer or orthoptist already has her diploma granted by the Orthoptic Board, which is composed of orthoptists and ophthalmic surgeons. She becomes a medical auxiliary on registration, and this arrangement need not be altered. The nurse likewise is already provided for in this respect.

Here then is our team. Under this plan a patient will visit an ophthalmic surgeon, who will examine him. The refractive error may be found by either the surgeon or the optician, acting as a refractionist, according to the nature of the case or the direction of the surgeon. In either case the optician will add the frame measurements, etc., to the prescription, and the type of frame selected. The completed prescription will be sent to the manufacturer. The spectacles, when ready, will be sent to the optician, and the patient asked to call for the final fitting and adjustment, thus giving the ophthalmic surgeon an opportunity of checking the glasses as well, if desired.

Should the surgeon wish to have an orthoptic report, or prescribes orthoptic training, his orthoptist is there ready. Or there may be some minor surgical procedure needed, such as the removal of a tarsal cyst; then the nurse is there to assist. I do not wish to go into detail, but to confine myself to the principle and outline of the plan. If the principle is accepted, then the details can be filled in, and the duties of each member of the team assigned.

Argument in Support

From this brief outline it will at once become apparent that we have employed all who are in any way connected with the practice of the treatment of the eye, and have divorced those employed from any commercial interest. I also maintain that, though the optician's status will be enhanced, and he will have gained much that he at present desires—namely, registration and a true recognition—this will have been accomplished without lowering the position of the ophthalmic surgeon. Not only will such a scheme give employment to ophthalmic surgeons and opticians but it is obvious that the number of each will have to be increased, for everyone who wishes to have his eyes examined will go to them and not to a "shop." This, then, will answer the two problems which have been put forward from time to time—namely, the employment of opticians if the "shop" and sight-testing are abolished, and the relief of the ophthalmic surgeon from that type of work, which some, perhaps erroneously, consider hardly within his province.

Such a scheme will obviously make it necessary to change the accommodation employed at present by most ophthalmic surgeons. But that perhaps will not be a disadvantage. Possibly "clinics" could be formed, where all the local ophthalmic surgeons shared a common "waiting-room" and each had his own consulting-rooms, which would provide accommodation for the optician and the orthoptist. If possible these might be a part of, or an annexe to, existing ophthalmic hospitals, or the eye departments of general hospitals. But such developments should not be considered in the present paper.

The opponents of any form of recognition or employment of opticians say that if we have anything to do with opticians we shall be in the same position as the dentists. This statement is ill-considered, for the position of dentists and ophthalmic surgeons cannot be the same unless, at some future time, the former are compelled to be registered as medical practitioners as well as dentists. Also in this plan the optician will be a medical auxiliary, and will not be absorbed into the ranks of the ophthalmic surgeons, which would be impossible, for he is not, and will not be, a registered medical practitioner. It is a pity that people make this kind of statement without thinking, for they not only prevent themselves from approaching a problem with an unbiased mind but they influence others, who accept their statements without due examination.

This attitude of hostility is born of fear—fear of their rival, and fear that their case is weak. It is also born of a reluctance to face facts. Opticians do exist. All this fear is unnecessary, for there is work for all. Let any ophthalmic surgeon count how many opticians of all kinds there are in his own district or town, and let him assume that they make a sufficient income to keep their "shop" open, and then let him remember that under this plan every member of the public needing advice will have to be seen by the "team"; then having done this, I cannot understand how he can say that there will not be enough work for ophthalmic surgeons, the opticians, and the rest; or that his position is "lowered." The orthopaedic surgeon is not lowered by his contact with the masseuse.

Under this plan there will be no dispensing and no sight-testing opticians as at present, but ophthalmic opticians, who will be registered medical auxiliaries; and, as there will be no "shop," the commercial aspect will not rear its ugly head. I maintain that the patient will have at his disposal a service such as he has not had up to now, and that this scheme can be adapted so that it can be used by any form of "National" Medical Service which may be introduced, whether part-time or whole-time.

Since I started working out this suggested plan, and before its publication, Mr. Frank Heckford of Ryde startled some ophthalmic surgeons with a suggestion very similar to mine. I was in some doubt whether to proceed with "my" plan or not; but I decided that I would, because if two people say the same thing it may carry more weight than if only one says it. I wish therefore to make it quite clear that I do not want to rival him but to assist, and that I do not claim any originality, but merely that my ideas have been evolving for a long time, even before this present war. Mr. Heckford's suggestions have been labelled "revolutionary" as against "evolutionary," but even evolution must at times appear to be revolutionary; to acquire a prehensile nose strikes me as revolutionary, but it was evolved, apparently, in the elephant.

J. W. Howard (*Amer. J. med. Sci.*, 1943, **206**, 735) records three cases of carcinoma of the duodenum in men aged 48, 65, and 80, in one of whom it was associated with erosion of the superior mesenteric artery. The rarity of the condition is shown by the fact that of 10,340 cases of carcinoma of the intestines the incidence of carcinoma of the small intestine was only 1.47%. Of 163 cases of carcinoma of the small intestine the duodenum was affected in 37%, the jejunum in 35%, and the ileum in 28%. It is generally agreed that duodenal carcinoma does not follow pre-existing ulcer and is seldom associated with polyposis.

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AMOEBIC DYSENTERY

Frank Hewlett, writing in the *New York Times* of April 18, 1942, on the fall of Bataan, stated: "It was malaria and dysentery—not Japanese tanks and dive-bombers, or bayonets—that told the final story." Such a statement is open to dispute, but there is no doubt that the control of transmissible diseases, and especially of tropical diseases, has in this war, as in many wars of history, affected the results not only of local engagements but of the campaign as a whole by determining the numbers and movements of the troops engaged. The two diseases referred to by Hewlett, malaria and dysentery—or more correctly three diseases, since we must distinguish between amoebic and bacillary dysentery—are often spoken of as the most important of the "tropical diseases." But their ravages extend far beyond the Tropics, and their control is to-day a matter of first importance on almost every front where our troops are engaged. Bacillary dysentery is by no means unimportant on the home front, as the mounting figure of notifications during this war has shown.

The causal micro-organisms and method of spread from man to man have long been known in the case of malaria and bacillary dysentery, and the knowledge thus acquired has been effectively applied. But amoebic dysentery is in a somewhat different case. In 1875 Lösch named an amoeba found in the stools of patients suffering from dysentery *Amoeba coli*, but whether this was the cause of dysentery was discussed inconclusively during the next eight years, largely because of failure to distinguish between the harmless *E. coli* and the pathogenic *E. histolytica*. Koch's discovery, in 1883, of their presence in sections of dysenteric ulcers and in the walls of liver abscess supported the view that at least certain amoebae were pathogenic. In 1886 Kartulis in Egypt found amoebae in 150 cases of dysentery, and in sections of the ulcers from twelve fatal cases. In 1899 Quincke and Roos described the cysts of *E. histolytica*, and found that cats were infected by swallowing the cysts, whereas the vegetative form was infective only when introduced directly into the rectum. The final proof of the transmission to man was supplied in 1915 by Walker and Sellards, whose careful experiments proved that, when cysts of both *E. coli* and *E. histolytica* were swallowed by human volunteers, a high proportion of the volunteers became parasitized; but in no instance did those successfully parasitized with *E. coli* develop dysenteric symptoms, whereas four of the eighteen parasitized with *E. histolytica* eventually did.

The causal organism having been described, and its power to infect man when swallowed in the form of a resistant cyst demonstrated, it remained only to establish how the parasite was conveyed from man to man. This final link has proved surprisingly difficult to establish: water supplies, food and food-handlers, flies, reservoir hosts, and direct transfer have all been suspected; but the organisms have not been found except associated with flies, reservoir hosts, or man. There is evidence that viable cysts are passed by flies after feeding on infective faeces, and since they have been found thus infected in nature it appears reasonable to believe that they play an important part in the transmission of the disease. Although the disease occurs in dogs, cats, and monkeys, there is no reason to believe that any of these animals are of significance in maintaining the disease, and it is probable that man is the only important reservoir. The difficulty of associating the human carrier with the spread of the infection is probably due to the fact that parasitization is not necessarily associated with the development of dysentery, so that it is often impossible to trace the source of infection in an individual who develops symptoms of the disease months or even years after exposure. It is tempting to conjecture that infection takes place through the swallowing of cysts adhering to uncooked food substances or present in contaminated water, particularly since we have proof that, under favourable conditions, they can survive for a long time in these. We may recall the outbreak of amoebic dysentery in Chicago in 1933, when over a thousand persons became infected apparently through drinking contaminated water. But although much has been written little has been proved regarding the normal method of infection; anything which adds to our knowledge, and so helps to strengthen our control of the disease, is to be welcomed.

During 1940 and 1941 Dr. Grace Ivanhoe[1] undertook a thorough investigation of the continued high incidence of *E. histolytica* infection among some 130 children, aged up to 6 years, living in an infant asylum in New Orleans. The history of the constantly extending amoebiasis in this institution is somewhat remarkable. In 1931 9% of the children were infected. Annual inspections from that date onward showed a progressive, though irregular, rise to the year 1939, when no less than 84% of the children were infected. Examination of the hygiene system adopted in the institution at first brought to light no reason for this persistent parasitization; in all respects the institution appeared to be clean and well kept. The water and sanitary systems were examined by engineers and found to be perfect; the rooms were cleaned with daily dusting and thorough house cleaning once a month; the laundering was done on the premises in a satisfactory manner; and the children's playground and bathing and wading pools appeared clean and well tended. The bed linen was changed almost daily, and night clothes three or four times a week. Underclothes were changed every day, and more often if needed. The children had individual washcloths, towels, and tooth-brushes. The youngest children had individual toilet pots, and the older children small flush-closets. At this stage one or two points regarding hygiene which at first were thought to be satisfactory proved on further investigation to be defective. Thus, in theory all the children were taught the use of toilet paper, and the process of defaecation among the little children was supposed to be under constant supervision. In practice it was found that this supervision was insufficient. Only a small proportion of the children used the toilet paper, and their underwear was often soiled with faeces. Again, it was found that in practice the pyjamas, which were sup-

[1] *Amer J. trop. Med.*, 1943, **23**, 401.

posed to be changed daily, were changed only twice a week unless grossly soiled, and, acting on the notion that clean pyjamas were issued daily, no arrangements were made for individual possession. Dr. Ivanhoe then went on to discover from what sources the escaped parasites were recoverable. In order to do this two methods were employed: the Foerst centrifuge was used to separate matter from water media, and NIH swabs were used to obtain matter for examination directly from objects. Then followed a laborious and prolonged examination of the material thus obtained. *E. histolytica* cysts were recovered from the hands and from the soiled underwear of the older children, from the dust at the bottom of the laundry chute, from the damp sand in their play-box, from the water in the wading and bathing pools after the children had left them, and from the concrete floors of both wading pools. This intensive survey reaped its just reward. Armed with the knowledge of the source of infection, the sanitary authorities thoroughly cleaned the home by steam spray twice in eight days, and then again after mass treatment of the inhabitants had been completed. "Four weeks after completion of the treatment the examination of one specimen from each of the children by means of the direct faecal film and zinc sulphate centrifugal flotation technique indicated that not a single stool specimen was positive." The author suggests that these results indicate that the use of live steam to sterilize the environment, together with anti-amoebic mass chemotherapy, constitutes a simple and practical means of controlling amoebiasis in institutions.

UTTERLY MISTAKEN

Speaking on the National Health Services proposals at Birmingham last week, Mr. Willink, Minister of Health, concentrated on what he called "two utterly mistaken ideas." The first was an idea held by doctors that the Government's proposals would end in converting the medical profession "into some sort of State-controlled and regimented service." The second was that these proposals would "ruin the voluntary hospital movement." Mr. Willink straightway said that nothing could be further from the truth, and he personally would not be party to any proposals which would have such an outcome. "I know that variety and professional freedom are the life-blood of any great profession—variety of personality in it and of individual professional method, scope for private enterprise in the best sense of that term. I know that a profession needs these things . . . if it is to attract the right people and to keep on achieving the highest results." In the new service, he said, doctors must be free to do their professional work in their own individual ways. There should be no risk of their becoming units in a machine, but they should "remain individual professional people in individual and personal relationship with those who seek and want their professional care."

As our correspondence columns with mounting emphasis are beginning to show, the medical profession at large is indeed anxious on these points, and, so far as it goes, will welcome the reassuring statement Mr. Willink has made. While our negotiators might reasonably expect to obtain a sympathetic hearing from a member of a great profession which itself shows no desire to be regimented, we must nevertheless face realistically the evidence presented to us in the White Paper, and in the pictorial edition of it at Charing Cross Underground Station. The prominent feature in the exhibition set up there about three weeks ago is a large-scale model of the health centre, the place where "to-morrow's doctors will work" and, as a diagram shows, for a salary. But soft words butter no parsnips, and, with all respect to the Minister's assurance, it is not easy to see how in the long run general practitioners of this country can escape regimentation and control by the State in a complete service paid out of the public funds and based upon health centres owned by local authorities. The Minister believes that the good features in private medical practice do not depend upon the charging of fees, and that the freedoms doctors cherish could be kept even though the method of payment is changed. It is not so much a question of fees as against salary—although payment by fees has the virtue of stimulating a man to keep on his toes—as the relationship between the body that pays the salary and the person who accepts it. He who pays the piper calls the tune, and if the paymaster turns out to be a Government Department (or its autocratic Central Medical Board), or a so-called democratic local authority, then doctors rightly tremble for the future of their ancient profession.

Mr. Willink was emphatic in denying that it was the intention of the Government to harm the voluntary hospital movement. "It is," he observed, "the very essence of our proposals for the hospital service that it should rest on both the existing hospital systems carrying on side by side. . . . We are proposing that the voluntary hospitals should remain, as they are now, self-governing and independent institutions." The Government did not propose that the voluntary hospitals should be taken over by local authorities. The voluntary hospitals would take part in the new service as free organizations, "entering into a contract with a public authority to perform certain services, for which they would receive payment from both the Exchequer and the local authorities." The Government did not intend to pay the whole of the cost of the services rendered by the voluntary hospitals, because if they did "voluntary support would no longer be needed." Many regretted the disappearance of the contributory schemes, but they could not restrict the "new universal service" to enable these schemes to continue.

The first reaction of many to the White Paper was to give it a cautious welcome, and this we must extend to Mr. Willink's statement last week—but cautious nevertheless.

TREATMENT OF SHOCK

Laboratory workers on traumatic shock may study conditions directly related to war or civil injuries in man, such as haemorrhage, burns, or crushing injuries. On the other hand, techniques may be used which have no counterpart in human injury, such as histamine or adrenaline poisoning, intramuscular hypertonic salt injections, etc. The latter indirect techniques serve as valuable controls on the direct methods, and analyses of the results often provide helpful clarification of the nature of various phenomena of wound shock.

Muirhead, Kregel, and Hill[1] produce "shock" by an indirect technique. A dog's hind limb is frozen. In three hours after freezing the "permeability" of capillaries is increased locally with gross swelling of the limb due to plasma transudation. Haemoconcentration and lowering of blood volume result, and the animal dies a few hours later in "shock." The condition may best be compared with the early acute stage following burns or crushing injuries. Their experimental observations on therapy are briefly as follows: (1) Amputation of the limb after haemoconcentration has developed, but before hypotension sets in, fails to save life. (2) An infusion of approximately 100 c.cm. three-times concentrated plasma given in divided doses during the fourth hour also fails to prevent a fatal outcome. (3) If amputation is combined with the plasma infusion, haemodilution is achieved and survival usually follows. A simple interpretation of these main findings is easy to suggest. Oligaemia results from plasma transudation in the injured limb. Once haemoconcentration has developed amputation can have little effect in correcting the circulatory state. A *single* plasma infusion may also exude into the tissues of the injured limb. The same phenomenon may be seen in man in burns and crushing injuries, in which *multiple* serum or plasma infusions are often required to restore and maintain the blood volume. If the injured limb of the dog is removed the infused plasma is retained, with lasting benefit.

In the animals which died after experiments (1) and (2) the pathological changes were of great interest: hyaline casts in the medullary tubules of the kidneys and centrilobular necrosis of the liver bring to mind the lesions seen in both burns and compression injuries. While the changes in the liver may be explained by the low flow of blood and consequent tissue anoxia of hypotension, the renal damage and other tissue changes, e.g., in lungs and suprarenals cannot be so readily accounted for. There is undoubtedly re-circulation through dead tissue in the frozen limb, and, in addition to loss of plasma, autolytic products diffuse into the general circulation with possible toxic effects on various organs and tissues. This work seems to open up a new method for study of the remote effects of tissue autolysis after necrotizing injury.

Some interpretations by the authors are open to question. When the haemoglobin fails to be diluted as much as expected after plasma injection they interpret this phenomenon as "mobilization of corpuscles." A more rational explanation would be loss of infused plasma from the circulation. The work of Sharpey-Schafer and Wallace[2] on man indicates that quite massive shifts of protein-containing plasma may take place into and out of the circulation with extreme rapidity. The bogy of "trapped" corpuscles in various parts of the circulation in shock is fortunately becoming a rather threadbare shadow of its former self.

[1] *Arch., Surg.*, 1943, **47**, 258.
[2] *Lancet*, 1942, **1**, 699.

BOOKS FOR PRISONERS OF WAR

Readers who have sent gifts to the Medical War Relief Fund for the special purpose of providing medical books for British doctors who are prisoners of war will be glad to know that the money contributed has not been lying idle. On the contrary, the greater part of it has already been spent, and the time is approaching when the balance remaining will be exhausted. Requests continue to arrive from the prison camps, and the letters from prisoners who have already received gifts of books leave no doubt as to the value of this form of help and the gratitude with which it is received. The Committee is anxious that the primary object of the Fund—the relief of financial distress—should not suffer through the diversion of money to the special purpose of providing books for prisoners of war, and only specially marked donations are used for the latter purpose. The Committee will be grateful if subscribers, while continuing to support the main object of the Fund, will send *additional contributions marked for the provision of books*. The need is becoming urgent. Cheques should be made payable to the Medical War Relief Fund and addressed to the Honorary Treasurer of the Fund at B.M.A. House, Tavistock Square, W.C.1.

ABSENTEEISM AND PREVENTION OF FATIGUE

The second pamphlet published by the Industrial Health Research Board on conditions for industrial health and efficiency[1] is divided into two parts. The first relates to "Absence from Work" and the second to "Prevention of Fatigue." Both subjects are dealt with in a simple but most instructive manner, which can easily be understood by anyone, factory worker no less than factory manager. The pamphlet is attractively produced, like its predecessor (which dealt with "Ventilation, Heating, and Lighting"), and it is likely to command a wide circulation. The information is to some extent based on investigations made in sixty factories, one of them having 25,000 employees, and it is concluded that under wartime conditions the absenteeism is almost certain to be greater than in peacetime, a reasonable absence amounting to 6 to 8% for men and 10 to 15% for women. Factories vary much in their accessibility, some of the large new factories in particular being a long way from the homes of the workers, and transport overcrowded and unreliable. Married women may show three times as much absence as single women, owing to the extra calls on their time for shopping, housework, and the care of children. Health is often affected by factory conditions, mental no less than physical, and these conditions can generally be improved in various directions. The boredom set up by the repetition work on which so many munition workers are employed can be reduced by the introduction of a 10-minute break in the middle of each work spell, and by occasionally relaying lively music; it is also well worth while to try, so far as possible, to see that the job fits the person, and to arouse interest by letting the workers see the finished product they help to make. Health can be improved by the workers, when off colour, seeking advice from the works doctor, and in buying varied and nourishing meals, while women with families should aim at half-time work.

The second half of the pamphlet discusses the relation between boredom and fatigue, and their influence on output. One of the most potent influences is the length of the working week, and the conclusion is reached that the weekly hours of work should not exceed 60 for men and 55 for women. For certain classes of workers, in particular for heavy manual workers and women with home duties, these hours are still too long. A week-end break is important, and working hours should be spaced over a five-day or five-and-a-half-day week. Workers suffering from the effects of cumulative fatigue should be given a rest of a week or fortnight at one of the country houses which have been taken over for this purpose. Thereby illness and breakdown may be avoided. It is stated that at present there are no signs that boredom or fatigue in industrial workers has reached dangerous proportions; but both are increasing, so safeguards ought to be taken.

[1] *Conditions for Industrial Health and Efficiency.* Pamphlet No. 2. H.M.S.O. 1944. (3d.)

The one adverse criticism we have to make concerns the date of the publication of the pamphlet. It would have been so much more useful if published some two years ago, there being practically nothing in its contents to preclude such a course.

MEASURING INTELLECTUAL DETERIORATION

Intellectual deterioration is a suspected sequel of many organic cerebral and some purely mental disorders; indeed, it is said by some to be the main cause of maladjustment to life during recovery from a head injury or other cerebral accident. It is, however, by no means easy to determine by ordinary clinical methods the nature and degree of such impairment. If mental tests could give an objective answer to these questions they would be valuable in prescribing treatment and in recommending suitable employment; the progress of a case could be followed and a more accurate prognosis given. Moreover, a quantitative measure of intellectual damage after an injury might be a useful guide in the assessment of claims for compensation and pension. Of the test procedures at present in use for this purpose most require special knowledge and take too long to administer to be of use to the average doctor; on the other hand, it seems unlikely that any single test would give a reliable enough measure of such very complex material. Brevity and simplicity are of prime importance; the results should be capable of quantitative evaluation; and current opinion seems to favour a battery of short and simple tests.

Most of the published work on this subject records the qualitative abnormalities shown by tests of patients suspected on clinical grounds of organic impairment. Such abnormalities may be due to organic deficit, but it is dangerous to assume without statistical backing that all subjects showing similar deviations from the normal are also intellectually impaired. There is in this branch of research a need for carefully planned and controlled experiments; the great variability of normal performance in mental tests, both between different individuals and in the same person under different conditions, makes it more than usually hard to interpret the results of such tests in psychopathological states. Indeed Goldstein,[1] reporting the results of such work in patients with brain injuries after the last war, states that it is not possible to judge the subject's capacities by the end-results of the tests he uses—that it is not what the patient does but how he does it that matters; this may be an extreme view. The basic hypothesis on which most of the quantitative work in this field rests is that a person's vocabulary and other types of rote knowledge is less affected by age and degenerative cerebral conditions than more recently acquired information.[2] If, therefore, there is found to be a discrepancy between the score on a standardized vocabulary test and those on tests of active mentation, this discrepancy is assumed to be due to intellectual deterioration. Using this principle, Lidz, Gay, and Tietze[3] have compared the results of tests of patients suffering from organic deteriorating conditions with those of schizophrenics. As a measure of their subjects' capacity for active mentation they have used the Kohs block test,[4] which, they point out, has the advantage of being a well-standardized performance test singularly free from the influence of past experience. The scores on this test are compared with those on the Binet vocabulary,[5] and it was found that the Kohs scores were significantly lower than the vocabulary in the organic than in the schizophrenic group. This finding is interpreted as showing that the thinking disorders of schizophrenics ought not to be included in the disabilities following damage to the brain.

The authors draw attention to the fact that their conclusions depend on the assumption that a normal control series would not show this discrepancy. If such proved to be the case, and if emotional factors as a cause of the discrepancies could be ruled out by examining a comparable series of psychoneurotics, the method they advocate might prove a valuable aid in the estimation of organic intellectual deficit.

1 *Brain Injuries in War*, 1942, London.
2 Babcock, H., *Arch. Psychol.*, 1930, No. 117, New York.
3 *Arch. Neurol. Psychiat.*, Chicago, 1942, **48**, 568.
4 *Intelligence Measurement*, 1923.

THE QUEEN'S NURSE

Charles Booth, in his *Life and Labour of the People of London*, remarked that it was "almost true to say that wherever a nurse enters, the standard of life is raised." Since the Queen's Institute of District Nursing was founded at Queen Victoria's first jubilee, the Queen's nurses have helped to raise the standard of life in a way not generally recognized. The visit of the Queen's nurse is not only effective in what she does for the patient's immediate need but in the atmosphere she brings with her and the example she sets. What the nurse says and instructs to be done is accepted by the patient, and the knowledge is passed on to family and neighbours. This has been a factor in social improvement perhaps more important than some of the other factors to which one commonly attributes the progress of the people towards healthier living. The Queen's nurse is different from the hospital nurse, not merely because the one has a domiciliary field of work and the other an institutional, or because the one is the guest of her patients and the other is the hostess, but because the nurse on the district, in addition to her three years' training in hospital, has spent a further six months in the study of the special problems of home nursing; and if she is the right type, as she generally is, she has great opportunity to give her patients advice beyond the matter of the immediate ailment.

A sixpenny illustrated pamphlet has now been published by the Queen's Institute (57, Lower Belgrave Street, S.W.1) to introduce the district nurse to a public which, though familiar enough with her navy blue uniform and badge, may not know very much about her work. She is organized through county and district nursing associations affiliated to the Queen's Institute. In towns her work is mainly general nursing, but in seventy towns midwifery is also undertaken, and midwifery forms an important part of the work in rural areas. In the midwifery service undertaken by the Queen's nurses in 1942 the maternal mortality rate was only 1.17 per 1,000 births. Some day, perhaps, the heroism of the home-visiting nurse in wartime will be commemorated. One incident is mentioned in this pamphlet. In the devastating air raids on Coventry the nurses' home was completely demolished, and the military authorities—perhaps not expecting to be obeyed—advised the nurses to leave the city. The nurses did nothing of the sort. They stayed on, living in an air-raid shelter and clambering about among the ruins to find their patients. On every housing estate in the replanned Britain there ought to be a nurses' house, as certain to be found there as the office of the estate agent or the manager, where one or more nurses could live. The general practitioner would be the first to welcome such an arrangement.

5 Terman, L. M., *The Measurement of Intelligence*, 1916, New York.

REHABILITATION OF HEART CASES

MEMORANDUM BY CARDIAC SOCIETY

The memorandum on the rehabilitation of cardiac patients printed below has been approved by the Council of the Cardiac Society of Great Britain and Ireland. It is signed by the chairman, Sir Maurice Cassidy, and the secretary, Dr. Maurice Campbell.

Many patients, those with fractures for example, derive great help from efficient rehabilitation. Without it they may be handicapped for long periods; with it most of them may be enabled to undertake full activities and to resume their normal work. The success achieved in this direction has led to the suggestion that similar methods should be used more widely, and the Council of the Cardiac Society felt the time was opportune for expressing their views and bringing forward some questions for wider discussion.

Patients with heart disease are in rather a special category as regards rehabilitation. In the first place any activity, including walking or other forms of physical effort, must automatically increase the work done by the heart. If the patient is going to recover completely—e.g., after some temporary infection—cardiac recovery will often proceed *pari passu* with recovery from the infection and no more than simple graduated exercises may be needed to ensure it; in fact he may need limiting rather than encouraging in his rate of progress. In other cases complete recovery may be impossible and it may be most important that he should not return to his previous work and activity.

Further, the correct diagnosis of the condition of the heart and especially of the heart muscle, and the correct assessment of the cardiac reserve, are of fundamental importance, and harm may be done by too much or by too little activity at any particular stage.

Limited Scope for Rehabilitation

In our opinion there is only limited scope for rehabilitation, as the term is now being employed, for patients suffering from organic cardiovascular disease. Physiotherapy and graduated exercise are of course useful but must be supervised by a doctor with special knowledge of heart disease. The main problem is the decision as to how much general activity should be allowed, and this depends more on the success of the doctor in charge in diagnosis and assessment of the patient's cardiac reserve than on the availability of skilled assistants in physiotherapy or occupational therapy. The need for suitable convalescent homes is of course generally accepted.

There are, however, cases in which the heart is temporarily under suspicion, which fuller investigation proves to be unjustified—e.g., systolic murmurs which the inexperienced may hesitate to disregard but the experienced are able to label as "insignificant." In many such cases all that is necessary is for an authoritative opinion that the heart is normal and that the patient is, therefore, capable of leading a full active life, but in others rehabilitation may be needed. There is also scope for rehabilitation in the case of effort syndrome, which is at least as common in civil life as under Service conditions, though here it may appear diagnosed as "cardiac anxiety state," "traumatic neurasthenia," or "post-influenzal tachycardia." But we suggest that the rehabilitation of these patients, whether by graduated exercises or by simple psychotherapy, should not be carried out at cardiac clinics, once it has been decided that there is no organic disease.

We suggest, therefore, that there should be more well-staffed and well-equipped out-patient cardiac clinics at general hospitals, preferably under the care of an experienced cardiologist. Here a correct diagnosis could be made, and the patient could be advised about suitable employment and be kept under observation when engaged in such employment. The help of the almoner's department would often be useful. If necessary the patients could receive specialized treatment that experience has shown to be more satisfactory in cardiac clinics, such as the treatment of auricular fibrillation with digitalis or of congestive failure with mercurial diuretics, or the control of symptoms of early angina.

Work for the Partially Disabled

Special difficulties may arise in finding suitable work for patients with some permanent limitation as a result of heart disease, and this is a problem that should be discussed. Many such persons, especially the younger ones with rheumatic heart disease, are precluded from those occupations which are most appropriate to their condition—e.g., Civil Service, banking, and insurance. They are, therefore, forced to take less suitable work for which no medical examination is necessary and in which their health may break down. Alternatively, they are out of employment and the nation is losing citizens who might give valuable service for a considerable number of years.

We recommend that where a patient is fit for particular work his acceptance should not be impossible because he has valvular disease which precludes his joining an ordinary life assurance scheme; it should be possible to make special arrangements for accepting such patients in some branches of the Civil Service, banking, etc.

Another difficulty is with the older patient who is beginning to be incapacitated by early signs of failure or angina or by such lesions as hypertension, arteriosclerosis, or myocardial disease which may lead to failure if his previous employment is no longer suitable. Such a patient would often be better at work and would like to be at work, but cannot find anything because he is not fit for the heavy work that he did before.

We recommend that there should be some industrial advisory board or Government Department through which arrangements could be made to ensure that these partially disabled patients could obtain suitable work, after, when necessary, appropriate special training. Often this would not be necessary and the patients' previous employers might be able to carry out the medical recommendations, especially if they were safeguarded against claims against them under the Employers' Liability Act in the event of a breakdown of an employee known to be suffering from heart disease.

The special care of rheumatic children is being dealt with elsewhere in a separate memorandum.

Nova et Vetera

EARLY BRITISH PHTHISIOLOGISTS

At the March meeting of the Section of the History of Medicine of the Royal Society of Medicine Prof. S. LYLE CUMMINS read a paper in which he dealt with five British workers who had given to the world epoch-making work on the aetiology, pathology, and treatment of tuberculosis.

Prof. Cummins dealt first with Richard Morton (1637–1698), who published his *Phthisiologia* in 1688. Morton was one of the first to appreciate the importance of phthisis and the necessity for carrying out post-mortem examination on the bodies of such patients. He entered the church as a young man and was ejected from his living in 1662. Thereafter he studied medicine and eventually became a Physician-in-Ordinary to the King. Morton recognized that, in the acute tuberculosis which was common in his day, the lungs might be full not only of ulcers but also of tubercles. In his post-mortem examinations he saw these tubercles in the glandular parts. In describing the symptoms and signs of phthisis Morton noted that the following were early features: The disease is more hereditary than any other; spitting of blood; continued loss of appetite; frequent catarrhs without obvious cause. His views on treatment were essentially rational. He recommended prudence in eating and drinking, early to bed and sound sleep, moderate exercise, an avoidance of strong purges, the maintenance of a cheerful disposition, and the enjoyment of "an open, fresh, kindly air."

Benjamin Marten published his *New Theory of Consumptions* in 1772 and went far to anticipate the subsequent discoveries of Villemin and Koch. Marten brushed aside all theories of causation which depended on the acidity or alkalinity of the humours, and suggested that "the original and essential Cause . . . may possibly be some certain species of Animalcula or wonderfully minute living creature" which are either carried to the lungs by the blood or are generated there from ova. It is important to note his suggestion that these animalcula "are for the most part either conveyed from the Parents to their Offspring or communicated immediately from the distempered Persons to sound ones. . . . The last way, which is properly called Infection, we may conceive to be the more reasonable." This is one of the brilliant flashes of inspiration which were lost in darkness for many years.

In dealing with William Stark (1741–1770) Prof. Cummins noted that, although he was a physician of St. George's Hospital, the hospital has now no record of his work there. Stark studied first in Glasgow and Edinburgh. He was the first to observe in the diseased body the method whereby the tuberculous nodules could cause advanced disease and death. He described the avascularity of the tubercle and made a very minute study of cavities. Small cavities are "quite shut up"; larger ones—which he called "vomicae"—frequently communicated with bronchi. Stark also described the thickening of the pleura over superficial cavities. There is no doubt that his work was of paramount importance in unravelling the pathology of phthisis.

George Bodington (1799–1882) belonged to an old Warwickshire yeoman family, and he settled in practice in the county. In 1836 he became the proprietor of a private asylum, and four years later he published his pamphlet on *The Treatment and Cure of Pulmonary Consumption*. Bodington was the first to suggest open-air treatment. He had a house for the purpose, and his treatment consisted of good fresh air, a sufficiency of wholesome food, and a definite quantity of wine, with a sedative (opium) to ensure sleep and to calm apprehension when necessary. He suggested and practised the specialist treatment of tuberculosis. At the time the medical profession howled Bodington down, but he now stands for the system which is at last tending to control tuberculosis.

Prof. Lyle Cummins also referred to the brilliant suggestion which William Budd of Bristol made in 1856 that phthisis is a specific zymotic disease which can be disseminated by specific germs in the tuberculous matters of sufferers. Budd did not publish his letter to the *Lancet* on this matter until 1867, and by that time Villemin was following the same trail to a successful issue.

Reports of Societies

ANAESTHESIA FOR ABDOMINAL OPERATIONS

A combined meeting of the Sections of Surgery and of Anaesthetics of the Royal Society of Medicine was held on April 5, Sir JAMES WALTON presiding, for a discussion on "Anaesthesia and Analgesia in Abdominal Operations."

Surg. Rear-Adml. G. GORDON-TAYLOR opened by drawing a half-serious, half-humorous picture of the modern anaesthetist, whom for versatility he compared with Leonardo da Vinci and the Admirable Crichton. Besides the large amount of technical knowledge and resourcefulness demanded of him, he was expected to be able to radiate comfort to the patient and to utter words of encouragement in simple language to the surgeon. Anaesthetists, if not a group of supermen, were in his experience as a surgeon the most loyal and delightful of colleagues.

The methods, vehicles, and agents of anaesthesia were legion, and there were few surgeons who had experience and time to evaluate the ever-changing kaleidoscope of anaesthetic activity. The task was not made easier by the absence of any exact criterion for judging the claim of a particular medium to be better or the best. It might have been thought that the figures for operative mortality would provide an index for appraisement of the value of a particular form of anaesthesia, but operative mortality depended on many factors besides the anaesthetic and the mode of its administration. Much had been heard of "balanced anaesthesia," and it might be thought that herein lay the talisman to solve the quest for the best anaesthesia. "Balanced anaesthesia" was certainly a euphonious term, one which must create confidence and expectation in the bosom of the patient, but it was surely only a novel name for an old concept and practice, with this difference, that the pharmacological admixture had now run riot. The former generation of workers was apt to be forgotten. Forty years ago George Crile first toyed with the idea of the shockless operation. Since 1914 the speaker himself had been an adherent of the Crile school, and he continued on the same lines with the loyal co-operation of his anaesthetist colleagues. He would not enter upon a comparison of methods which were perhaps not really comparable, but rather give an account of his own experience in abdominal surgery. Many abdominal operations, especially the surgical treatment of malignant tumours of any size in the abdominal wall, must be extensive, and without regional anaesthesia great shock would be produced. So far as the abdominal wall was concerned, he had contented himself with the rectus block along the outer border of the muscle and the lower costal margin, and thus obtained the degree of relaxation of the abdominal wall that he desired. During the last twenty years he had used novocain almost entirely. Novocain had the disadvantage that its duration was not unlimited (and the average gastrectomy took him an hour and ten minutes). In addition to the regional and solar plexus block he liked to keep his patient slightly under general narcosis with a little ether and chloroform, never getting the patient deeply under. He always had a bias against a mask over the patient's face for any long period. For "bad risks" and cases with severe haematemesis, operation should be carried out under local and splanchnic block without any general narcosis.

Adml. Gordon-Taylor then gave some statistics of various surgeons. He mentioned the figures of Yudin of Moscow for gastro-duodenal resections and acute perforated ulcer, carried out under high spinal anaesthesia, 331 cases, with 21 deaths (6.3%). Duval in Vienna claimed 125 gastric operations for ulcer, and Haas of Munich 250 such operations, in each case with no deaths, regional and splanchnic anaesthesia being employed. H. W. L. Molesworth in this country reported 119 gastric operations (ulcer) under local and splanchnic anaesthesia, with 3 deaths (2.5%); W. J. Ferguson at West Middlesex Hospital, 202 with 7 deaths (3.5%); and Norman Tanner at St. James' Hospital, Balham, just under 100 with 4 deaths, and a later series of 120 with 1 death, which last remarkable record he attributed partly to the prophylactic use of sulphapyridine. Adml. Gordon-Taylor mentioned 794 of his own cases over a period of 18 years, in which there had been 52 deaths; he had not thought the death rate was as high as 6.3% until he came to work it out, but he was comforted by the fact that in a later series, 1938–44, of 148 cases, including gastric and duodenal ulcer of all types, there had been only 4 deaths (2.7%).

In many regions of the abdomen the question of anaesthesia counted less than other factors. For operations on the gall-bladder—simple cholecystectomy—he had never used any anaesthetic except general inhalation and regional. With obstructions of the common duct it was important to avoid ether and chloroform, and he used gas-and-oxygen supplemented by good regional and solar plexus block. In carcinoma of the colon the actual choice of anaesthesia mattered very little; the skill and methods of the surgeon were much more important. Nothing could vie with local anaesthesia in the case of strangulated hernia. He added a few words on anaesthesia in war. An old slogan of his was, "In a man wounded in the belly spinal anaesthesia is certain euthanasia," and he did not depart from that opinion. Conversations with surgeons recently returned from the Mediterranean confirmed their trust in ether. He was a little surprised that the work of Crile during the last war with gas-and-oxygen and regional anaesthesia had not been repeated. Crile's recovery rate in the last war far exceeded that of any other abdominal surgeons on the western front. But the figures from surgeons in the Mediterranean did not fall far short. In the Navy the problem was slightly different. On H.M. ships there was always a risk of explosion, and therefore, in the smaller craft at any rate, ether anaesthesia seemed to be forbidden. Here he acknowledged the help of the Oxford vaporizer machine, which had permitted operations on some of the rescue ships to be successfully performed.

Abdominal Relaxation

Dr. FRANKIS EVANS said that anaesthesia in abdominal surgery might be considered essentially in terms of relaxation. No surgeon could work properly inside the abdomen unless the muscles were adequately relaxed. As Lord Moynihan used to say, "The surgeon should never need to fight the patient." The anaesthetist's duty was to master the various techniques he might be called upon to use. Abdominal relaxation might be obtained in many ways. The choice of inhalation anaesthetics was far greater now than twenty years ago. Ether was an old friend if a somewhat malodorous one. It had been stated that from 65 to 72% of patients vomited after ether anaesthesia. It was wrong to give ether to a chronic bronchitic. Chloroform was, of course, more toxic than ether. Gas–oxygen alone did not give abdominal relaxation. Where ether was used with gas–oxygen to give relaxation the gas–oxygen was, of course, only the vehicle. Cyclopropane was "the answer to the anaesthetist's prayer," but he had not always been able with cyclopropane to obtain the degree of relaxation required, and had added a little ether—but a little ether went a long way. Describing the technique of the adrenaline drip, he said that this should be in the strength of 1:250,000 in normal saline. It was advisable not to add the adrenaline to the saline until the drip had got going; in other words, one should not start with adrenaline straight away. The average rate of drip was 50 to 60 a minute. The drip should certainly be continued for two hours, perhaps longer. The longest time he had carried out an adrenaline drip was something like 18 hours; the patient was very ill, and the procedure proved satisfactory. Intravenous pentothal had proved of great use, but he did not recommend it for the "desperate risk."

Mr. NORMAN LAKE said that the use of anaesthesia was twofold: to prevent the patient feeling pain, and to enable the surgeon to perform the operation with facility. The modern anaesthetist in his proper desire to achieve the first object had sometimes neglected the second. Many post-operative sequelae laid at the door of the surgeon might be related rather to the anaesthesia. Some complications were said to be due to "rough handling" of the viscera, but it should be inquired why rough handling was necessary. Unsatisfactory anaesthesia with a rigid abdominal wall might be the most important factor necessitating these manœuvres summed up in the phrase "rough handling." Speaking of the procedure

in the use of spinal anaesthesia, Mr. Lake said that it was a psychological error to ask the patient whether he could feel anything. The anaesthetist should, without such questioning, be fully appreciative of the patient's feelings. The atmosphere should be one of confidence in the anaesthetic and in its safety. This was best obtained by a matter-of-fact attitude on the part of all concerned rather than by repeated reassurances. One disadvantage of spinal anaesthesia was that it permitted the patient to hear all that was said. The walls of the operating theatre should be placarded with warnings against "careless talk." Freedom of speech was all very well in the Atlantic Charter, but it had no place in spinal anaesthesia. He thought the advantages of high spinal anaesthesia outweighed by far its disadvantages. He had used it for years in gastrectomy and similar operations with increasing satisfaction.

The remainder of the discussion was largely a relation by speakers of the details of their particular methods or their modifications of classic methods. Dr. A. H. L. BAKER spoke of the advantages of regional anaesthesia, especially in the better relaxation obtained as compared with general anaesthesia. Dr. ETHERINGTON WILSON said that spinal anaesthesia took a great deal of "getting used to," and the technique must be controlled. He described his own technique, in which he used spinocaine with better results than with nupercaine. Mr. HAROLD DODD and Dr. H. W. L. DALE mentioned modifications which they employed in their practice. Sir JAMES WALTON commented on the slightness of the reference in the discussion to general and complete anaesthesia.

In a general reply Mr. NORMAN LAKE said that on listening to the various speakers he could not help drawing an analogy with our bombing policy in the war. When we wanted to destroy railways in Germany we did not send out individual bombers to cut up a little bit of line here and a little bit of line there, but we sent, in the aggregate, a smaller number of bombers to pinpoint some notorious place such as a marshalling yard. Regional, splanchnic, and local anaesthesia represented a distribution of forces in order to reach the individual railway lines: but with spinal anaesthesia one was actually "bombing the marshalling yards at Hamm."

PHILOSOPHY OF THE PECKHAM EXPERIMENT

The philosophical basis of the Pioneer Health Centre at Peckham was discussed in a lecture to the Science (Research) Society, a body of young biologists, by Dr. INNES H. PEARSE, one of the medical directors of the Centre.

Dr. Pearse began by pointing out that in the physical or chemical analysis of an organism, which involved the separation of its elements, some quality which she called "livingness" escaped. The pieces of Humpty Dumpty could never really be put together again. The study of the living organism of society demanded a different type of procedure, a creative synthesis, not the cracking of the shell of the egg but the getting of a hen to sit upon it. She mentioned the inseparability of the oragnism and the environment. All increase in the organism might be said to take place by engulfment of the environment, and once engulfed, a mutual synthesis took place, a shuttle-like process, between the organism and the environment. It was within the range of probability that what was being studied was in fact a mutual evolution of organism and of environment—an environment which was as organismal as the organism itself.

Those who undertook a biological experiment had first to decide what unit to adopt, whether the simplest of organisms—the amoeba—or man; and the Peckham experimenters chose man, for it was the function of the organism they desired to study, and man had the greatest differentiation of function. But they did not take the individual as the basis of observation, they took the mated pair, reaching full maturity in parenthood. Dr. Pearse suggested that in parenthood there was a new creative synthesis, not only in the physical realm but in the whole realm of function which was touched by man and woman. She instanced the parallel of the pair of eyes, each eye in a sense complete and functioning by itself, but having some added aptitude—namely, stereoscopic vision—when functioning as a pair. Something of that kind, she said, might represent the fundamental significance of sex. With this hypothesis, the family—i.e., the mated pair, with or without children—was chosen at Peckham as the unit for observation of the inherent design in the growth and development of the social organism. The selected environment, for various reasons, could not be the homes or the workplaces, and so the field of leisure was taken, but leisure into which was introduced the greatest diversity of interest and activity, and which brought together people of all ages and of every type of culture and skill. A fairly good cross-section of a suburban community was obtained, and into the midst of this, without disturbance, the observer and his instruments were introduced. A system of periodic health overhauls and family consultations was inaugurated. It was not medical advice which was tendered at such consultations, it was simply a statement of the facts relating to the children and to the parents themselves which had been elicited during the overhaul. During the four years of the experiment Dr. Pearse had not heard of one family who, within three months of the consultation, had not in some way acted rationally on what they had been told and had put it right. She described how the subject of pregnancy was approached, and an endeavour made to build up the woman's reserves. The result was that during pregnancy there developed among the Peckham Centre mothers an increase of maturity—a kind of "bloom"—which was quite outside any previous experience of her own in a long medical career. These mothers were in the swimming bath a fortnight before their confinement, they were engaged in the activities of the Centre three hours before they went to hospital, they led a more active life during their pregnancy than at any other time, and from the way in which they carried themselves the casual observer would never have noticed that they were pregnant. Dr. Pearse also described the way in which the "man friend" or "woman friend" of a member of the family was introduced into the Centre, and, as marriage was approached, the procedure of health overhaul and consultation extended to him or her also. The observers further looked for the integration and co-ordination of the families of the Centre with one another so as to form a living society in which all shared. Unhappily, war has interrupted this experiment as so many others.

A joint meeting of the Ulster Medical Society and the Northern Ireland Branch of the B.M.A. was held on Feb. 17 in the Whitla Medical Institute, Belfast, when Lieut.-Col. Ian Fraser spoke on penicillin on the war front. After giving the history of bacteriostatic drugs from 1850 to 1943 he outlined the progress of research on penicillin from Fleming's discovery in 1929. In recording the properties of the drug, he mentioned the trouble produced by it in laboratories, its bad effects on fruits, and its use in the manufacture of valuable by-products. There were 600 varieties of the genus *Penicillium*, the best-known being *glaucum, rubrum, patulinum,* and *notatum*. Different media were used in its production, the penicillin appearing as a felt on the surface of the medium. As it grew only on the surface, a large surface area was required to produce large quantities. The underlying fluid could be aspirated and replaced by fresh media. It was reduced to the form of a yellowish-brown powder. It was used as a calcium or sodium salt, and was destroyed by acids, alkalis, heavy metals, alcohol, oxidizing agents, heat, rectal contents, *B. coli,* and air organisms. It had no ill effects on white blood cells or fibroblasts. The mode of action was unknown. The most sensitive organism was the gonococcus. With small doses organisms could become resistant just as they did to the sulphonamides. Penicillin was used locally as a calcium salt or as a sodium salt parenterally. Col. Fraser then showed a film illustrating its use on the wounded of the Sicilian and Italian campaigns.

Effects of Inanition and their Treatment

The Scottish Group of the Nutrition Society met recently in Glasgow to discuss science and post-war relief. Dr. H. E. MAGEE, of the Ministry of Health, in a paper on some effects of inanition and their treatment, pointed out that relief parties going to Europe would not be faced with a host of well-defined deficiency conditions to be corrected by appropriate nutrient concentrates and vitamins. A knowledge of the physiological effects of severe malnutrition would be needed, and in many cases care and discretion in the giving of food. Professional fasters who had survived for as long as 50 days on water only showed changes in body weight, B.M.R., temperature,

and blood volume. Animal experiments had shown that the alimentary canal itself was affected; the mucous membrane atrophied, its protective function decreased, toxins were absorbed more readily, while ulcers were apt to form in the large intestine. The people of Europe would be suffering from varying degrees of partial deprivation, anaemia, hunger oedema, and from neurological and gastro-intestinal complications. The last was the most serious of all and in advanced cases recovery was rare. The gums were swollen and inflamed as in scurvy, the tongue red and denuded of epithelium, and the teeth decayed. The stomach was dilated and there was a profuse watery diarrhoea with as many as 30 stools a day. Blood protein fell to a very low level. Death was due to severe diarrhoea with cardiac failure. Mild cases responded rapidly to easily digested food, while cases which came between the two extremes required hospital attention with careful feeding and symptomatic treatment. Opium and potassium permanganate were useful for the diarrhoea. The diet should consist of small quantities of food six times a day—milk, gruels, lean meat, very little fat, with pepsin and hydrochloric acid. Intravenous injections of glucose at frequent intervals helped. Good results had been obtained in many serious cases with intravenous administration of protein hydrolysates. The solution consisted of an acid hydrolysate of casein, tryptophane, cystine or methionine and glucose in Ringer's solution. Up to 4,000 c.cm. of this was given 8 hours out of 24; this yielded 80 g. protein and 1,600 calories. The method was at present under further clinical trial.

Dr. Harriette Chick, of the Lister Institute for Preventive Medicine, who described the famine conditions in Vienna after the last war, thought that the problems would be rather different this time. There would be fewer cases of simple vitamin deficiency, but a great deal of general malnutrition.

Correspondence

Hygiene, Morale, and Desert Victory

SIR,—As Assistant Director of Hygiene, Eighth Army, during the relevant period I read Lieut.-Col. H. S. Gear's excellent article, "Hygiene Aspects of the El Alamein Victory," and your leading article thereon in the *B.M.J.* of March 18 with the greatest interest and, with two exceptions in your leading article, with entire agreement.

The first exception taken is to the first sentence of your leading article, "The conditions that obtained in the Western Desert were so local and exceptional that much of the knowledge that can be distilled from the experiences of the Eighth Army therein cannot be applied directly in plans for military enterprises elsewhere." I submit that this is a disastrous view-point—a view-point that is unfortunately held too generally, with the consequence that many of the valuable lessons learned there are being overlooked. Warfare to-day is a matter of movement, rapid and over long distances, interspersed with long periods of inactivity while stores are being built up and short periods of pitched battles. Events on all fronts bear out this contention. The problems of administration and organization will be the same in any theatre of war. What hygiene or technical considerations that arose in the Western Desert will not arise in other theatres? The gross water shortage and to some extent the desert sore are the only conditions that are localized to that campaign. Every other problem will arise in some degree in other theatres of war, and no other is likely to be so easy to deal with hygienically and to be so generally healthy. What great need therefore is there for us not to forget those lessons we learnt, particularly those in connexion with organization, when fighting in other places where we may meet all the same difficulties plus many more?

Secondly, you say that the Army at El Alamein was "dispirited." They were physically exhausted and perhaps bitterly disappointed, but never dispirited. Dispirited men could never have fought as did those tired troops between the sea and the Qatara depression during the early part of July, 1942. The leadership of the commanders of those days, such as the late "Straffer" Gott and "Dan" Pienaar and many others who are still living, never allowed the troops to become dispirited, and the morale of the Eighth Army during July, 1942, was never higher.—I am, etc.,

R. LEANING,
Army School of Hygiene, Mytchett. Lieut.-Col., R.A.M.C.

The Prisoner-of-War Mentality

SIR,—I was greatly interested in Major P. H. Newman's article (Jan. 1) and feel that he has done the prisoners a real service. I hope that interest in the prisoners of war will be sustained throughout the post-war years, and that this time some sympathetic action will be taken. The cause of the men will need the powerful advocacy of Press and people, and the *B.M.J.* could play a leading part.

Major Newman discusses the officer prisoner. The large majority of our prisoners are N.C.O.s and men, and the conditions will be sharply different from that experienced by the officers. I feel that Major Newman is too optimistic about early recovery. I agree with Dr. B. R. Billings (Jan. 15) that the very large majority of our returned prisoners of war will be problems for their lifetime. The men on return will find the war over and be bewildered and hurt by public reaction and indifference. They should not be demobilized but offered a period of reasonable financial security. The alternative of attempting to assess disability and granting a pension will have to be considered.

The establishment of prisoner-of-war clubs is likely, in my opinion, to retard rehabilitation. The returned prisoner should be encouraged to mix with others who have not suffered similar experiences and to merge as soon as possible into normal service or civil society. I hope Major Newman will continue with his most excellent work, and trust that the question of the prisoner of war and his future care will be kept constantly in mind.—I am, etc.,

India. JOHN HARKNESS.

Health and Nutrition

SIR,—What's in a name? A name is a direction: a misnomer is a misdirection. Is "health centre" a misnomer? "Health" means whole (A.S. *hælð*="health," from *hál*, whole: M.E. *hole*). A mental deficient is not whole. A thyroid-short person is not whole. A malnourished child wants something and is not whole. Food of the needed quality is the major factor in building up a wholesome people. Patients only come to us for their defects and deficiencies to be recognized and remedied. "Thou canst make me whole" was the cry that met the Healer. (A.S. *hælan*, to "make whole,"="to heal," is from the same word *hál*, "whole.") The centre the White Paper sketches is a communal surgery, nothing more: a place for the work of healing.

But we are told our service is to be "directed towards the achievement of positive health" (Medical Planning Commission). That is to be our first and principal objective; and indeed it is the only aim of a true national health service. What means are we to use? The documents, White Paper and all, are silent. The means, however, will, upon reflection, be seen to be nine-tenths nutritional. To engender a people sound and complete in every attribute, with dynamic vigour, in very truth with positive health, the means is a sound nutrition, the yield of a fertile soil, the yield of the sea—which is always fertile—those, or the first at least, are prerequisites.

One paragraph in the White Paper (p. 8) states the problem with a candour which, in view of the complete failure of the document to attempt a solution, is astonishing.

"Much of present custom and habit still centres on the idea that the doctor and the hospital and the clinic are the means of mending ill-health rather than of increasing good health and the sense of well-being . . . the plain fact remains that there are many men and women and children who could be and ought to be enjoying a sense of health and physical well-being which they do not in fact enjoy. . . . These deficiencies . . . a comprehensive service should seek to make good."

That is the paragraph.

The seeker (the comprehensive service of doctors, hospitals, and clinical facilities, all for remedial medicine) will never "make good these deficiencies." The service may provide a surgeon to remove a toxic goitre; but to prevent it is beyond the scope. The comprehensive medical services cannot warp the banks of estuaries with iodine-containing mud, they cannot carry inland seaweed by the 100 tons. A Nutrition Minister, Col. Llewellin, perhaps, if he could engulf Mr. Willink and Mr. Hudson with the powers of Agriculture and Fisheries, could make a real impression on the great nutrition problems.

Our people are grand material. A plentiful poor-quality dietary stultifies them. Aware that something is missing, they know not what, they may be discontent. Strikes often mean unrecognized dietary deficiencies. But the ethnic threads woven into the texture of our folk are of high quality. They were tested by invasion, by battle; and two or three thousand years have not weakened the germ plasm. What of the other factor? The cattle-breeders' jest, "Half the pedigree goes in at the mouth," speaks a true thing. The show-ring awards go to the well bred that are well fed. Our people are well bred. The germ plasm is all right. Not so their nutrition. A primary quality in feeding stuffs is freshness. "Alive or nearly alive" is the motto. Apply that to our tables and the gulf between what should be and what is appears. The industrial revolution has cast its blight on the farms; and the food which was used fresh in the old static days now in this age of transport *in excelsis* reaches us from afar, processed in factories or frozen in the Antipodes or autoclaved and tinned or fragmented in the mill, so that we get the shot of the food cartridge without the powder, treated in a thousand ways with skill and chemical mastery; but dead.

Yes, the title of the White Paper, "A National Health Service," is a misnomer and a misdirection. So is the expression "health centre." Healing, not health, is what they deal with. For that purpose we can claim that the doctor's work under the N.H.I. has, to a point, succeeded. To the "cure of sickness" the lowered death rate speaks. It is common ground that that medical work should be extended to the mothers and children. It is common ground that better access to the special departments of treatment is needed. I question whether the machinery of the White Paper and of Sir William Beveridge's report is necessary—except to safeguard the finance of the scheme, which seems the overt reason for the medical section of his proposals (Sect. 437 of Sir William Beveridge's report, last 3 lines). All-beneficent extension of the Act could have been made without this shattering disruption of our age-old profession. Extension is desirable, indeed necessary; but it will not create health. Positive health does not need doctoring: "They that are whole need not a physician"; it is nine-tenths a matter of nutrition, and to be engendered by the fresh product of sea and soil. When Health, Food, and Agriculture and Fisheries are bracketed, so as to minister to the nutrition of our people, we shall have a National Health Service worthy the name.—I am, etc.,

Holmes Chapel. LIONEL JAS. PICTON.

The Effects of Cold

SIR,—If you can spare me a little of your restricted space I should like to try to clear up a misunderstanding which I think I detect in Dr. Raymond Greene's letter of April 1 (p. 466).

I hope I have not stressed solidification as a necessary cause of immediate death of tissues when exposed to cold, for, as we all know, the skin can be solidified by the ethyl chloride spray for a very short period without necrosis ensuing. A slight prolongation of the exposure, however, produces subsequent sloughing. Yet individual cells *in vitro* always die when their cytoplasm is solidified, and so the evidence leads to a dilemma. It must be recognized, however, that a whole tissue in the body is composed of more than cytoplasm; there are, for instance, the tissue (intercellular) fluids, which may freeze without the cells themselves being solidified; in other tissues—e.g., bones, tendons, skin, etc.—the main mass is composed of material which is the product of cellular activity, the cells constituting but a small part of the total. This is particularly so in the case of the tails of such animals as rats and mice, which are often used experimentally. Solidification of a tissue, therefore, does not of necessity mean that the cytoplasm of the contained cells has been frozen; indeed the invariable display of supercooling in cytoplasm introduces a time factor which saves the cells in short exposures; hence the common experience with ethyl chloride.

Possibly the pathology of the cryopathies is best considered on a cellular rather than a tissue basis. In this sense I still think that there is a critical temperature (about −5° C.) below which immediate cellular death occurs, this being the basic pathology of true frost-bite; while above this temperature the individual cells are very little affected and the subsequent changes (gangrene, etc.) are secondary to reactive vascular and other phenomena, this being the essential pathology of trench foot, immersion foot, and similar conditions. Naturally in severe exposures both states will be present, since the temperature fall must vary, depending upon the depth of the tissue from the surface (temperature gradient); the clinical picture is thus rendered obscure by this superimposition of pathologies, and it is unwise to draw deductions therefrom.

The distinction between the two conditions is of much more than academic interest, for if the cells are destroyed during the exposure there is no hope of saving the part, whereas when the cells are alive there is hope that some treatment may be devised which will prevent their subsequent death from secondary causes.—I am, etc.,

London, W.1. NORMAN C. LAKE.

Epidemic Jaundice

SIR,—I have noticed for some considerable time reports in the *Journal* of an epidemic, or series of epidemics, of infectious jaundice which have appeared in various parts of England. It is of interest to me because for some months there has been an epidemic in my district in South-Western New South Wales. There may have been a wider distribution, but I cannot say with certainty.

I have noticed on one or two other occasions that we have had epidemics here, almost coincident with similar epidemics abroad, which cannot be explained merely on a basis of contact. I refer particularly to the 1937–9 epidemic of poliomyelitis: I believe that about then there were also epidemics in England, Germany, and the U.S.A. One is reminded of the theory that there is a periodic increase in the virulence of micro-organisms which is almost world-wide.

Clinically the cases are mild, both children and adults being affected. There appear to be a large number of cases which are so mild as to escape medical attention. The symptoms and onset are similar to those described in the *Journal*. I have been struck by the hunger which occurs as soon as the more acute symptoms pass off. So far as physical signs go, they are also similar to those reported but rather milder. Liver tenderness seems very common. The incubation period is hard to investigate, but one gets the impression that it varies from at least three weeks to a longer period. The epidemic has now been in progress since autumn last, or nearly a year.

This is a part of the State where medical practice embraces large farming areas. Sporadic cases are occurring in both small towns and farms remote from towns.

There have been no serious cases and no complications.—I am, etc.,

Ardlethan, New South Wales. R. A. MCGREGOR.

Toxic Effects of Sulphaguanidine

SIR,—In an article by Dr. H. G. Smith in the *Journal* of Feb. 26 the effects of sulphaguanidine on the skin are stressed, and in a letter published on March 11 Dr. J. H. S. Whyte draws attention to what he considers to be renal damage after treatment of dysentery with this drug. As neither skin rashes nor renal complications are commonly described by those who have had extensive experience of the drug in countries where dysentery is a serious problem, I feel it necessary to allay the fears of doctors who might be deterred from using sulphaguanidine in their occasional dysentery cases. It would be regrettable if patients were to be deprived of the use of a specific drug, or if the dosage were to be reduced below what is usually recommended—underdosage gives bad results.

In a hospital in the Middle East my colleagues and I had very considerable experience of this drug; we worked under conditions which would increase the risk of renal complications, and certainly would not diminish the effects on the skin. Yet "of the 323 cases treated with sulphaguanidine, often with very large doses up to 350 g., very few examples of toxicity have been found; the drug does not upset the patient any more than does kaolin; in four cases there have been rubelliform rashes about the tenth day, and there has been only one serious complication, a 'sulphaguanidine kidney,' which cleared up rapidly after the intravenous administration

of 2 pints of 4.285% sodium sulphate" (Bulmer, E., and Priest, W. M., *Lancet*, July 17, 1943, p. 69). The average dose was 100 g., and this was often greatly exceeded. I think an explanation must be sought for Dr. Smith's very high incidence of skin rashes (21 out of 44 patients); there may have been some variation in the sample of the drug he used, but he has certainly had an experience with which I am unfamiliar. Even if skin rashes were common, it is very doubtful whether they would matter.

Dr. Whyte's letter raises another hare: he suggests daily urinary examinations for crystals and red blood cells during treatment with this drug because he found them to be present in 14 out of 25 patients whom he treated with quite small doses—51 g. "Sulphaguanidine kidney," the only serious renal complication, is almost unknown, and mine was, so far as I know, the only one reported in the Middle East. Crystals may indeed be found in the urine, and sometimes acetylated compounds of sulphaguanidine will occur, but less frequently than with the other sulphonamide drugs; the presence of a few red blood cells is not unusual in the urines of healthy people.

May I, therefore, register my plea that sulphaguanidine be used in dysentery in full doses, without raising bogies about renal damage or skin rashes?—I am, etc.,

ERNEST BULMER,
Brigadier.

Cause of Silicosis

SIR,—Mr. Blacktin's letter in your issue of April 1 invites criticism, if only because the unsolved problem of the true cause of silicosis is so serious that misleading comment on it is to be deplored; and I fear that his remarks are of this kind.

When first considering the study of the action of dusts on weevils I had some hope that it might throw light on silicosis, partly because silica chanced to be practically the only "inert-dust" insecticide known at that time. The hard facts of experiment soon showed, however, that the two problems had little else in common. It is an accepted fact that in silicosis silica (in some form) is the causative agent. In contrast, any finely divided hard sharp substance can act as an insecticide, including calcined alumina, which is extensively used in the potteries as a safe substitute for silica. Further, dusts act on weevils by breaking down an invisible waxy waterproofing on the insect's shell (which, incidentally, is rigid and *not* subject to movement), causing abnormal water loss and eventual death by *desiccation*. Assuming that Mr. Blacktin has really read my Cantor Lectures, it is a little difficult to follow his reasoning, since there is in fact no shred of evidence that any connexion exists between the causation of silicosis and the action of insecticidal dusts.

Incidentally, I would remark that there is no real reason to suppose that a sharp particle will lacerate a soft surface on which it lies. The best lining in a ball-mill used for grinding hard material is rubber, because it is *not* abraded even under extreme conditions of movement under pressure.—I am, etc.,

Royal College of Science, London, S.W.7. H. V. A. BRISCOE.

Electrocution: Revival by Rocking

SIR,—This case will interest specially the many doctors who teach resuscitation to their first-aid classes.

A youth was electrocuted at his work, respiration ceased entirely, he was pulseless, livid, ears very blue. Div. Supt. F. Dowell promptly performed Schafer's method for 10 minutes without response. By that time Amb. Officer C. B. Cole and Sergt. W. S. Hill had extemporized for the stretcher a fulcrum of concrete blocks 3 feet high, on which Eve's rocking method was performed a dozen times a minute through an angle of 45 degrees each way. (This angle was verified and obtained with the handles conveniently a foot from the ground.) After 20 minutes of rocking, respiration was completely restored.

To save time the wrists and ankles were not bound to the stretcher handles. This was found unnecessary as it was an A.R.P. stretcher of which the wire mesh had bulged from use. The patient did not slip or need support. Blankets had been placed above and below, as in A.R.P. handbook No. 10.

Respiration again failed in the ambulance on the way to the hospital, but soon responded to Schafer's method, and recovery was complete.

Supt. Dowell has supplied me with the above careful details of this fine piece of first-aid work at Leicester recently. He adds:

"The rocking method certainly ventilated the lungs better than Schafer's method, and we are all convinced that rocking saved this youth's life. All the members of this Division have previously been rocked and agree that it makes you inhale and exhale better than Schafer's method."

This case also provides a complete answer to the criticism of Dr. Lloyd Davies's letter in the *Journal* of Jan. 29. He is a firm believer in the rocking method provided the patient is fastened by straps above the shoulders and under the perineum. But his electrocuted girl was so limp that he maintains she would—if fastened only by wrists and ankles to the stretcher-handles—have been shot off the canvas stretcher when tilted at 45 degrees, with peril of fractures of neck or limbs.

The method I prefer is to start Schafer's (or Silvester's) method at once on the ground (blanketed). The stretcher and trestle are brought to him there, he is rolled on to the stretcher and Schafer's method continued while the ankles and wrists are quickly bandaged to the handles. Then, without fumbling, the stretcher is placed on the trestle and rocking started by a full head-down tilt of 45 degrees. The feet-down tilt is not started until fluid from the lungs or stomach has ceased to flow. Rocking is continued at 10 double-rocks a minute—i.e., 4 seconds head down, 2 seconds feet down. Warmth is essential.—I am, etc.,

Hull. F. C. EVE, M.D., F.R.C.P.

Chronic Pulmonary Catarrh in Childhood

SIR,—Many readers of Dr. A. Bryan Taylor's thoughtful paper upon this subject (April 1, p. 453) will feel indebted to him for focusing their attention on an important and somewhat neglected problem in children's medicine. Repeated respiratory infection is common among children in ordinary practice, and, of course, very many examples are seen in an out-patient department. Some of these patients are "wheezy" in the attacks and may be sent up by their doctors because asthma is suspected. Infection certainly plays a large part in many cases of asthma, but all that wheezes is not asthma, and differentiation is no simple matter. Dr. Taylor would have us follow the example of Leys, who used the label "chronic pulmonary catarrh"; this surely is a term to be avoided, for, like "chronic bronchitis," it is by no means precise and apt to be loosely applied. Moreover, "chronic pulmonary catarrh" does not describe these cases really well, because they usually suffer from *repeated* respiratory infection, the brunt of which falls on the upper respiratory tract, seldom so much affecting the alveoli of the lung, except when the pneumococcus or some pneumonia-producing virus is responsible.

Certainly we should avoid any label tending to discourage the search for underlying causes. We need to elucidate the background of the so-called chronic bronchitis or pulmonary catarrh, so that treatment can be planned on a rational basis, and a broad consideration of the factors governing both *infection* and the patient's *resistance* is the only proper way of ascertaining the causes of these repeated respiratory attacks.

Infection.—The reason for the recurring infections may be discovered on entering the home. Perhaps the most elementary rules of ventilation are being ignored, or no harm seen in the presence of somebody with an acute respiratory infection in a room crowded with children. In a recent patient of mine the school-room was overcrowded and badly ventilated, so that the children were always getting colds.

Resistance.—When we turn to questions of *resistance* we are soon in deep water through lack of accurate knowledge. Probably there is a group in which defective diet is important (too much carbohydrate or too little of protective foods). Age and constitutional or inherited factors, as well as hygienic ones such as fresh air and clothing, also play a part which is somewhat undetermined.

Experience shows that a large proportion of these patients have nasopharyngeal abnormalities: there are, for example, the children who are seldom free from nasal discharge from October to March, indicating recurrent or persistent sinusitis; and sometimes there is disease of the tonsils, or perhaps they or the adenoids have been

unskilfully removed, for this is one of the worst-performed operations in surgery.

As Dr. Taylor rightly says, allergic asthma as well as local disease in the lungs has to be excluded, and his emphasis on the need to remedy faulty breathing is also welcome, but his paper does not sufficiently emphasize that treatment depends on accurate diagnosis. It is true that a change of climate may check the sequence of repeated respiratory infections, but most of these children need to be helped without taking them from their homes, and we should first discover what is the matter with them. Clinical and social medicine should here co-operate in diagnosis and treatment, which implies team work between physician, radiologist, nose-and-throat surgeon, physiotherapist, and health visitor.—I am, etc.,

London, W.1. REGINALD LIGHTWOOD.

SIR,—I have read this article by Dr. Brian Taylor (*Journal*, April 1, p. 453) with great interest, but would beg to disagree with some of his statements: first, that when "recurrent colds and upper respiratory catarrhs were followed by generalized pulmonary effects—coughing, tight chest, wheeziness, and more or less 'asthma'"—they have no true allergic basis; secondly, that "textbooks and the like do not appear to recognize this common and troublesome condition"; and, thirdly, that "skin-testing may show sensitivity to proteins, but these are usually so varied as to make the knowledge of little value."

In many discussions and writings on asthma in childhood (e.g., Garrod, Batten, Thursfield, and Paterson, *Diseases of Children*, 1934, 3rd edition) I have described this "lung damage type," classifying it as such in order to stress the role of upper and lower respiratory infections and the pulmonary complications of the infectious fevers in childhood in the precipitation of the initial wheezy attack, and the part of each subsequent infection in causing a recurrence of the cough, tightness, or wheeziness. A vicious circle seems to be present: the body appears to have very little resistance to even low-grade infections, and if the mucous membranes are constantly irritated by some air-borne allergen an oedematous state is maintained to produce a more fertile field for the growth of any roving bacteria. On the germs taking up their residence the catarrhal symptoms increase, the child is put to bed, propped up with ample pillows, kept in an under-ventilated and over-heated room, and its digestion overtaxed with milk, sops, and cereals. Obviously the difficult breathing that ensues is an allergic manifestation, and surely the knowledge of skin tests which showed a sensitivity to certain proteins—usually feathers, down, horsehair, dust, milk, or cereals—is now of great value in therapeusis. During the infection the body's general resistance is lowered, and the available protective adrenaline production is reduced or used up more quickly; contact with the irritant bedding is increased from 10 hours to 24 hours a day; the dust content of the room is increased by rendering ventilation inadequate in attempts to avoid draughts; the temperature of the room is increased so that the natural evaporation of moisture from the mucous membranes is impeded and their swelling and clogging augmented. In fact, the child is saturated to excess with various potent allergens when resistance is at its lowest ebb.

The deleterious effect of air-raid shelters on these children is the result of adrenaline exhaustion consequent on prolonged fear; greater liability to infection from chilling, overcrowding, and the lack of ventilation and the disinfectant action of any sun's rays; and the greater concentration of allergens—dusts, moulds, eiderdowns, pillows, rugs, and even animals in a very confined space.

Surely the tightness of the chest, cough, or wheeziness in such cases is just as much allergic in origin as the aggravation of an infantile eczema by administering egg-white or fish? If the usual irritants are avoided in these cases of "chronic pulmonary catarrh" constantly—the bedding freed from all feathers, down, horsehair, and dusty substances; the bedroom maintained with a minimum of ledges, curtains, carpets, or other dust-holding surfaces; and the forcing of large quantities of milk and cereal foods is forbidden, especially during infections—the agreed very beneficial effects of changes of climate, breathing exercises, and general hygiene can be greatly augmented and any neuropathic tendency discountenanced.

Dr. Taylor seems to suggest that the criteria of a true allergic asthma are the previous occurrence of infantile eczema, a direct relation between the attacks and foreign proteins, freedom from respiratory symptoms and signs between attacks, and a greater frequency of symptoms in the summer months. In my experience only one child asthmatic in three has had infantile eczema; as severe asthmatic attacks can be produced by aspirin as by any foreign protein; the majority of asthmatics have a blocked or runny nose even between attacks; and with the exception of pollen-sensitive cases most asthmatics are worse in the winter.

Finally, most of the cases described will respond to adrenaline if, first, it is adequately given—small doses being frequently repeated at short intervals and the injections continued for hours after the apparent lessening of the spasm—and, secondly, the sensitizing substances have also been thoroughly removed—the irritant bedding changed and over-alimentation avoided, however "valueless" the skin reactions may have appeared in the free interval.—I am, etc.,

London, W.1. GEORGE BRAY.

Pregnancy and Pulmonary Tuberculosis

SIR,—There appears to be something connected with the mysteries of childbirth in the tuberculous woman which, according to Dr. Logg (April 1, p. 468) and Dr. McDade (Jan. 15, p. 97), renders one particularly liable to censure by presenting conclusions which conflict with prevailing opinion. It appears that I have even gone so far as to formulate conclusions contrary to those reached by a B.M.A. conference which sat at Oxford in 1936. May I, through your columns, respectfully remind these gentlemen that we are members of a scientific profession, and deductions based on research should not be influenced by the opinion of others, however eminent the individual or august the gathering. The Black Notley cases have all been treated by myself, or under my supervision, and I maintain that, based on these, my conclusions are logical ones and are definitely not precluded by Dr. Logg's rather dogmatic statements, for which he produces no evidence other than expressions of opinion.

Dr. Logg states that my deductions are not supported by "latest work elsewhere," but he gives no references. I do not know of any comparable recent work, but Jameson at Saranac Lake Sanatorium (*Gynecological and Obstetrical Tuberculosis*, Montreal, 1935, p. 134) reported similar good results in 1935. I am not familiar with the facilities in London for the care of pregnant tuberculous women, but so far as I am aware Black Notley is the only sanatorium in this country which provides the special facilities described in my paper. In this respect at least Dr. Logg must grant London's inferiority to Essex. With reference to Dr. Logg's six "prominent facts," I would like to say:

1. While it is true that some tuberculous women date their illness from a confinement, the number of similar cases in which this cannot be shown must be vastly greater. (I have no figures—neither, apparently, has Dr. Logg.)

2. I have not claimed that pregnancy is likely to benefit the lungs of a tuberculous woman, but I am not alone in noting the improvement that does sometimes occur, and we must remember that many factors in the immunology of tuberculosis are still not yet understood. It may be that, as suggested by my colleague Dr. M. C. Wilkinson, the endocrinal changes which take place in pregnancy have an influence on tuberculosis.

3. Seventy out of 75 quiescent and arrested cases passing through pregnancy and labour without harm is more than a "proportion," and even Dr. Logg must admit this is a significant figure.

4. The usual length of stay after confinement at Black Notley is, for quiescent cases, 1 month under wartime conditions, but was previously 3 months. "Active" cases are retained as long as necessary for treatment. The number of the latter cases was admittedly small (25), but all were under careful observation for periods varying from 2 months to 3 years, and the fact that 18 of them were ultimately discharged either quiescent (8), improved (4), or unchanged (6), does not support Dr. Logg's assertion that "the large majority of active cases tend to deteriorate appreciably during pregnancy or within a few weeks of labour."

5. Combined obstetrical and tuberculosis treatment is precisely what is provided at Black Notley.

6. Reference to my paper (*Journal*, Dec. 18, 1943) will show that I agree with Dr. Logg in that therapeutic abortion is indicated in some cases, and possibly more frequently so when the facilities I

described are not available; but I had hoped that the article, incomplete though it was owing to space restrictions, would have at least suggested that many pregnancies in tuberculous women are unnecessarily terminated.

I feel that it is very seldom safe to be dogmatic in dealing with tuberculosis, and while presenting this letter to refute Dr. Logg's accusation of "precipitate deductions," venture to commend "cautious comment" to him in subjects where much research still remains to be done.—I am, etc.,

Braintree. R. C. COHEN.

Anaesthetics, Old and New

SIR,—Recent publications in the *Journal* tend to revive the impression that all is not yet well in the world of anaesthesia. May I, who have been a teacher of anaesthetics for over thirty years, be permitted to express my views on this subject.

Dr. Spoor (March 11, p. 374) writes: "The G.P. uses chloroform and will continue to use chloroform until something equally powerful, convenient, pleasant, and withal less toxic is discovered." I hope not, and I know that the many students I have taught will not. Dr. Spoor's letter has been ably answered by Dr. Dale (March 25, p. 434), but if Dr. Spoor would like to have further information as to why chloroform is condemned he might be interested to read "The Present Position of Chloroform" (*Lancet*, June 12, 1926). In 1925 it was agreed at a meeting of the Scottish Society of Anaesthetists that "in the light of our knowledge of the properties of chloroform, to proceed to induce full surgical anaesthesia supplied only with the means of administering chloroform is unjustifiable." To-day that opinion holds good.

Dr. Kemp, in his article on the aetiology and treatment of convulsions during anaesthesia (April 1, p. 447), suggests that a convulsion during anaesthesia is due to interference with cell respiration in the brain resulting from a condition of anoxaemia. So far, indeed, it is the only acceptable explanation of this phenomenon. Dr. Kemp, however, fails to explain (1) why there were no recorded cases before 1924, and (2) why cases occur with a certain frequency in the records of some administrators and not at all in those of others. These two facts definitely support the view that recent methods and manner of employing anaesthetics are important factors in causing convulsions.

Open ether is not a very recent method, and, as a matter of fact, is relatively rarely the method employed when ether convulsions occur. In a series of over 20,000 cases of open ether I have not seen a case of ether convulsions. Yet Dr. Kemp states that "prophylactic treatment consists in avoiding open and semi-open administration of ether." What is meant by "semi-open" I do not know. Open ether, as I understand it, is a perhalation method with mask and drop-bottle and no limitation of atmospheric air. His first case of convulsions (Case 1, 1924) is reported as occurring during "anaesthesia with ether vapour, with oxygen and semi-open technique with mask and damp towels." I could well believe that damp towels, suitably employed, could be depended upon to bring about a condition of anoxaemia and convulsions. His Case 4 (1943) is typical of the complications and risks associated with modern methods: "pentothal–intratracheal nitrous oxide–ether . . . closed filter circuit . . . patient in second plane of third stage of anaesthesia . . . pulse 110, colour dusky." All this for a skin-graft operation requiring a simple gas–oxygen administration, and perfectly illustrating the manner in which the misuse of the modern machine leads to anoxaemia and convulsions.

What exactly is the value to the patient of the technique adopted in the above case? It is a method, too, which corresponds to that employed in many other places—e.g., cranial nerve palsies following general anaesthesia (see Humphrey and McClelland, and Carden, March 4, pp. 315 and 319). Dr. Carden refers to the closed-circuit carbon dioxide absorption technique as being almost a routine practice of most anaesthetists, its outstanding advantage being that a quiet operation field is ensured by the diminished respiratory excursions. This is certainly an indirect advantage to the patient, for the surgeon is able to operate more swiftly and with less trauma. I am not aware of any other advantages to the patient, and have not infrequently observed profuse sweating and consequent dehydration. I look upon the closed circuit as an unfortunate necessity when cyclopropane is indicated as the anaesthetic agent to be employed. One must not forget, too, that surgical shock is associated with a low blood pressure due to a falling-off of the cardiac output. The cardiac output depends upon the venous return, and the venous return is greatly assisted by the respiratory excursions. Sufficiently quiet respirations can be assured by appropriate premedication.

It is very difficult to assess the value to the patient of any particular anaesthetic technique, so much must depend upon the skill and experience of the administrator. A method which saves time and trouble, entertains the administrator, and satisfies the surgeon, may not be the best for the immediate and post-operative welfare of the patient.—I am, etc.,

Dundee. ARTHUR MILLS.

Medical Research

SIR,—May I add my voice to that of Mr. Malcolm Donaldson, who in the *Journal* of April 8 makes a plea for medical research as a career, and clamours for better conditions and some encouragement for those who show aptitude and interest and a bent for research work.

Various agencies have been set up in the course of time for the cultivation or encouragement of medical research—academies under Government patronage, learned and professional societies formed by interested individuals, special endowment funds the trustees of which distribute income in the form of subventions, and, finally, research professorships occupied by individuals who enjoy the advantages of university associations while freed from ordinary university routine. The final phase in the development of research was the outright institute for medical research established for the express purpose of expediting the increase of knowledge in the field of medicine.

In the past, as Mr. Donaldson points out, recently qualified men with a bent for research too often had to give up hope of developing it for lack of means of support during an apprenticeship. Later came the epoch when grants were obtainable from various sources, but their acceptance usually implied some obligation to collect observations or experimental results for publication. It is now realized that the time spent on immature effort of this kind can be better applied, and that allowance for an unproductive period may yield far better fruit in the long run.

With this view in mind the Government in 1920 set up under the jurisdiction of the Privy Council the Medical Research Council, through which young research workers are maintained in various laboratories and clinics throughout the United Kingdom. In most places where active investigation is going on the beneficient and intelligent co-operation of the Medical Research Council may be discovered. In addition to its distribution of subventions to research workers in universities, hospitals, and kindred institutions throughout Great Britain, the Council with part of its modest funds runs the National Institute for Medical Research at Hampstead. There are very few medical men who are familiar with the manifold activities of the M.R.C. or with the mechanism and general principles guiding its actions. These are set out at some length in the *Lancet* (Aug. 6, 1938), and anybody interested in medical research should make a point of becoming familiar with the workings of the M.R.C.

The financial side of medical research, however, is unsatisfactory. The annual grant from the State Treasury to the M.R.C. is now £215,000. In addition to its public funds, the Council are in a position to help directly or indirectly by advice in the disposal of private endowments for medical research. These they receive from various sources. At present the State provides but meagre financial support for medical research, and though the country is still conservatively inclined, British medicine is moving towards the larger conception of scientific medicine. Now is the time for the profession to organize and clamour for more money with which to conduct research work. A mere £215,000 is, of course, inadequate, and the Government can afford a much larger sum.—I am, etc.,

G. R. W. N. LUNTZ.

*** It should be added that it was in 1920 that the Medical Research Council received its present title and constitution. The move to provide public money for research was made in

1911, in Mr. Lloyd George's National Health Insurance Scheme. It was in 1913 that the Medical Research Committee (continued in 1920 as the M.R. Council) was established to administer the funds for medical research provided under the National Health Insurance Act.—ED., *B.M.J.*

Babies in Glass Cages

SIR,—I was careful in my previous letter not to express a personal opinion regarding the use of glass cubicles, and merely recorded what I had been told in Vienna, where the idea originated. This was that the idea had been abandoned because it gave poor results owing to the children being lonely. It appears that Dr. Baar wants my opinion, so he shall have it. First, he states that the use of cubicles had been abandoned in Vienna because von Pirquet was dead. Surely this is a fantastic point of view. Has insulin been abandoned since Banting's death? Has the use of the arsenicals been given up since Ehrlich died? If ideas are good they do not die with their originator. Again, he states that "the majority of patients in babies' wards are not yet at a sociable age." My dictionary states that "sociable" means "disposed to associate with others." Are not babies disposed to associate with their mothers and others? Do not young mammals crowd together or press close to their mothers? This is so universal that it might be considered instinctual. Separation must be intolerable to a child—more so than to the adult. It might be said with truth that never again will the child be so sociable as it is in its babyhood. To place it in solitary confinement in a glass cubicle seems contrary to its instinctual reactions and is likely to produce harmful results.—I am, etc.,

London, W.1. CLIFFORD ALLEN.

Medical Boarding for the Merchant Navy

SIR,—I have read with complete agreement and much satisfaction the letters on the above subject by Dr. H. M. Royds Jones (Dec. 25, 1943, p. 831) and Dr. E. L. Caldwell Smith (Jan. 15, p. 96).

My own experience of the Merchant Navy is of a mere three years' duration, but in that short time I have found that one rapidly gets to know the more permanent members of one's crew, and even though some are not A1 their departures from positive health are known and can be dealt with. Such men constitute no problem; but every new man may have a chronic duodenal ulcer or a progressive suppurative otitis media—to quote but two types of recent headache—and in existing circumstances, when a busy "signing-on" day permits of only cursory examination, the condition can and will be discovered only when the sufferer reports sick—after sailing.

Until I read Dr. Caldwell Smith's letter I was not aware that the "Pool" kept medical records of any sort, but in view of this fact I think that the procedure which I have recently adopted in dealing with the genuinely sick men may recommend itself to Dr. Royds Jones and many other ship surgeons who find themselves faced with the same problem.

My procedure is to notify the Pool medical officer by personal letter at the end of each voyage of the names and ratings of all men who in my opinion are unfit for sea—e.g., epileptics, peptic ulcers, etc.—and at the same time to refer them to their own doctors, telling the men of all the steps taken. In this way a man cannot complain of high-handed treatment by the ship surgeon, as he comes into the care of his own doctor; or, if he has no doctor, he can be referred directly to the hospital of his choice for investigation and treatment. Thus, in theory at least, the Pool knows the men who should not be permitted to sign on again without careful overhaul, and as a central organization should be able positively to prevent known unfit cases from going to sea. This scheme will not prevent unfit men getting to sea *once*, but should prevent recurrences. Without prejudice, I must add that I have never yet received any acknowledgment of my communications from the Pool; so whether they are at all appreciated I do not know.

One man referred in the above way some six months ago recently rejoined my ship a much fitter specimen altogether—he was clinically a duodenal ulcer—and he tells me that he spent three weeks in hospital, but in confirmation or negation of my diagnosis I have had no word. I am prompted, therefore, to the following plea: that the same procedure be adopted in dealing with ship surgeons' as with G.P.s' cases, and a note of the diagnosis and treatment sent by the hospital or doctor concerned. As such patients may apply for a position in the ship at a later date the information is of great importance. I do not imply that such notes are never sent, but their absence is a noticeable feature. A record card which should accompany each man from ship to ship is a necessity, but in the meantime the suggestions made above may be of some help.

So much for ships carrying a surgeon. But what about the greater number that sail without? Would it be possible for the Pool to supply a questionary as to the health of the crew, which would be filled in at the end of each voyage by the surgeon if carried, or by the chief officer (the cargo-ship "surgeon") if not, in which leading questions as to men with symptoms of the commoner incapacitating complaints would provide answers whereby the "Pool" medical officer could investigate more thoroughly any suspicious cases?—I am, etc.,

A. E. K. SALVI,
Ship Surgeon.

Pavlov's Theories

SIR,—May I comment upon your two recent leading articles dealing with Pavlovian physiology and neurosis—namely, "Pavlovian Physiology and War Neurosis" (*Journal*, Aug. 14, 1943, p. 205) and "Behaviour and Neurosis" (Oct. 16, 1943, p. 487). These articles make the criticism that Pavlov's concepts of cortical function and their application to the problems of human behaviour and neurosis are vitiated by his failure to "think in terms of the meaning of stimuli," in "psychological" as well as "physiological" terms, and describes this failure as unscientific and biased.

If brain be the physical organ of mind, then either psychological and physiological phenomena are related precisely and interdependently or their relationship is non-existent, doubtful, or variable. Physiological experiment and deduction in the first case need take no special separate cognizance of the parallel phenomena of consciousness. In the second place, confusion of psychological concepts, definitions, and phenomena must surely be rigidly avoided. It would seem that it is the attitude of your leading articles and not that adopted by Pavlov which is "hardly in the spirit of science."

The statement that Pavlov refused to admit that the behaviour of experimental animals might be determined largely by physiological needs, aversions, conflicts, or other internal motivations is most misleading. He specifically noted that intrusion of strangers, hunger, satiety, desire for micturition, fear, neurosis, confinement, and external distraction profoundly modified his results, and not the least admirable feature of his work is the technique introduced to cope with these complications. Masserman's experiments are apparently made under less rigid conditions in which "the animal is not placed in complete isolation and isolated from every stimulus but the experimental one." The inference drawn that his experiments and conclusions are therefore more scientifically valid is difficult to follow.

It is stated in reference to the application of Pavlovian principles to social phenomena that "this *may* be good physiology but as a contribution to the all-round understanding of life this kind of wild analogy is a step backward into the materialistic abyss." If it is good physiology honest men must take that step; if not, then disproof will be on scientific grounds and not upon threats of an abyss or criticism of Pavlov's philosophy of life. Surely at this stage of scientific thought the fear that spiritual or psychological realities may be destroyed by demonstration of physical and chemical mechanisms for vital phenomena can be dismissed as mere vulgar error. One may deny in Pavlov's work the accuracy of his experiments, his scientific probity, the correctness of his generalizations, or their applicability to human affairs. One should, however, demonstrate grounds for so doing. To state that his speculations as to the cortical processes of Christian martyrs reach "the zenith of absurdity" without demonstration of the absurdity of fact or logic involved is simply to

darken wisdom. Scientific criticism must be divorced from confusion of terms, from preconceived dogma, and from emotion. Otherwise it can only mislead, misinform, and delay.

"Love," it is stated, "is more than an appetite, and war neurosis more than a stimulation of the fear reflex." One must assume, then, that either they are voluntary psychological acts or that they are independent of physical, neurological, and hormonal mechanisms. Otherwise it is difficult to see how they are to be distinguished from reflexes except in terms of complexity.—I am, etc.,

Brisbane, Queensland. HAROLD R. LOVE.

Shock Treatment of Mental Disorder

SIR,—I think the answer to the editorial question appended to my letter (April 15, p. 537) might be put thus: The psychiatrist does not provide "material cells, tissues, or secretions" with "a sane outlook." But so long as these are sufficiently capable of transmitting to the sufferer's mind the explanations and advice of the psychiatrist the sufferer may be able to appreciate and to some extent overcome the handicap of such of his material cells, tissues, or secretions as are not, for some as yet undiscovered reason, functioning normally. If his material cells, tissues, or secretions are in such a condition that they cannot transmit these explanations and advice, or enable the sufferer's mind to interpret them, the mind remains, of course, inaccessible, but not necessarily—or at any rate probably—in itself diseased.—I am, etc.,

London, E.C.1. H. H. BASHFORD.

Service Medicine

SIR,—We feel that the anonymous letter published in your issue of April 1, under the heading of "Service Medicine?" demands a reply, if only to correct the statement that it "so accurately" expresses the views of many serving members of our profession. As members of the staff of two teaching hospitals who have been in one of the Services since the outbreak of the war we feel that we have had exceptional opportunities of seeing "Service medicine" and of comparing it with the conditions of pre-war civilian practice, both hospital and private.

Experience over nearly five years has convinced us that Service patients, whether officers or other ranks, get better medical attention as regards diagnosis, treatment, rehabilitation, and after-care, than do civilians, even in peacetime. Those who, like ourselves, have been in consulting practice are all-too-familiar with the carcinoma of the rectum treated with kaolin for months, or the advanced case of phthisis missed through failure to examine the sputum or *x*-ray the chest. This type of catastrophe very rarely occurs in the Services.

It is of course true that in the Services fuller and more accurate clinical notes are kept, and that administrative arrangements are such that a full medical history is available whenever a Service patient falls ill. Such a system is essential not only from the point of view of continuity of treatment but safeguards the interests of the patient in connexion with the attributability of his illness and subsequent pension, both of which may depend on accurate records; these incidentally will be of great value at a later date from the point of view of medical statistics and their bearing on public health. In our experience the primary factor which overrides all others is what is best for the individual patient.

As regards equipment, that in the Service hospitals we have visited is as good as in the teaching hospitals and better than in the majority of the voluntary hospitals. No piece of equipment asked for and needed for the good of the patients is refused if justifiable and available. When special treatment, such as deep *x*-ray, is required for which no Service facilities are available the patient is promptly transferred to an Emergency Medical Service bed where the required services are available. Even in sick quarters the equipment and the supply of drugs are better than most practitioners are likely to carry in their consulting rooms.

Your correspondent complains that he has not enough work to occupy his time. Obviously in any Service in wartime circumstances over which the medical authorities have no control may temporarily increase or diminish the stress of work. It has, however, been our experience that in the rare cases in which we have heard this complaint from medical officers the officer is either lazy and incompetent or else he is one of those disgruntled persons who is primarily interested in his own comfort and career rather than in his contribution to the war effort. If there is to be a State Medical Service it can only be hoped that your correspondent will see his way to remain out of it.—We are, etc.,

STANFORD CADE.
London, W.1. J. J. CONYBEARE.

Obituary

J. C. DUNLOP, M.D., F.R.C.P.ED.

We regret to announce that Dr. James Craufurd Dunlop, formerly Registrar-General for Scotland, died at Drumbeg, North Berwick, on April 10.

Born on Sept. 3, 1865, the son of a Glasgow merchant, he was educated at Christ's Hospital and the University of Edinburgh, graduating M.B., C.M. in 1887 and proceeding M.D. in 1895; he also took the M.R.C.P.Ed. and M.R.C.S.Eng. diplomas, and was elected a Fellow of the Royal College of Physicians of Edinburgh in 1891, afterwards serving as vice-president. Dr. Dunlop went to Strasburg, Vienna, and Paris for postgraduate study; on his return to Edinburgh he served for five years as an extra physician to the Royal Hospital for Sick Children, and was then appointed medical superintendent of statistics at the Registrar-General's office. In 1914 he went temporarily to the War Office in London as Director of Statistics in the Department of the Surveyor-General of Supply. In 1921 he became Registrar-General for Scotland and was responsible for the Census of that year; he retired from the post in 1931 on reaching the age limit.

James Dunlop was a statistician of international repute; the Faculty of Actuaries of Scotland made him an Honorary Fellow and he was a member of the International Statistical Institute. Unofficially he was responsible for the only two life tables compiled for Scotland—one based on the 1911 Census and the other on the 1921 Census. Among other public services he worked as a member of the Royal Commission on the Care and Control of the Feeble-minded. He had been inspector under the Inebriate (Scotland) Acts, and assisted for some years the medical adviser to the Scottish Prison Commissioners. A keen sportsman and lover of open-air pursuits, he took particular pride in his appointment as a member of the King's Bodyguard for Scotland (the Royal Company of Archers).

R. J. COULTER, F.R.C.S.I., D.O.

We announce with regret the death on Easter Sunday at the Royal Gwent Hospital, Newport, Mon., of Mr. Robert James Coulter, consulting ophthalmic surgeon to that and other hospitals and formerly honorary treasurer of the Oxford Ophthalmological Congress.

He studied medicine at Trinity College, Dublin, graduating B.A. in 1891, M.B., B.Ch., B.A.O. in the following year, and M.A. in 1907; he obtained the F.R.C.S.I. in 1899 and the Oxford Diploma in Ophthalmology in 1911. His first appointments were as house-surgeon at the National Eye and Ear Infirmary, Dublin, and at the Bristol Eye Hospital, and thenceforward he devoted himself to ophthalmology, working in South Wales and Monmouthshire on the visiting staff of the Royal Gwent Hospital, the Newport and Pontypool Hospital, the Blaina Hospital, the Woolaston House Infirmary, and the Abertillery and Ebbw Vale Hospitals. He was a member of the Ophthalmological Society of the United Kingdom and of the Société Française d'Ophtalmologie; and among other writings on his specialty he contributed the section on injuries to the eye to W. J. Greer's *Industrial Diseases and Accidents*.

Mr. Coulter had a long record of service in the British Medical Association, which he joined in 1894. He was active in the local work of the Monmouth Division, president of the South Wales and Monmouthshire Branch in 1925–6, and treasurer from 1933. At headquarters in London he was a member of the Ophthalmic Committee from 1923. At the Annual Meeting of the Association in Birmingham in 1911

he was secretary of the Section of Ophthalmology, and he held office again as vice-president of that section at Bradford in 1924 and at the Edinburgh Meeting in 1928, the year in which he gave the Montgomery Lecture.

SIR HENRY MAUDSLEY

Sir THOMAS DUNHILL, who was house-physician to the late Sir Henry Maudsley at the Royal Melbourne Hospital in 1904, sends the following appreciation:

Maudsley was the first to begin the teaching of modern neurology at the Royal Melbourne Hospital. That does not imply any dearth of good—or great—clinical teachers before him, but it is no criticism of those men to say that a patient with disease of the central nervous system received less attention than the condition merited. In the days when those teachers had graduated travel to the home country was not so usual as it became later, and neurology was comparatively young. Maudsley had grown up under the influence of his uncle and namesake who founded the Maudsley Hospital for mental diseases; he had the inquiring mind and he was student and house-physician with Victor Horsley, who for many years to come was working out the centres and tracts of the central nervous system. Maudsley was appointed to the teaching staff of the Royal Melbourne Hospital in 1904; before then he had been, for some years, on the staff of the Alfred Hospital, at that time not a teaching hospital. To him every neurological case was a fascinating problem, a spiritual adventure. One recalls his excited face, the tenseness in his well-groomed erect figure as he approached the patient; his "Now, now, now?" to one and another of his students as he unravelled the symptoms in his orderly way, correlating their knowledge of anatomy and physiology with the clinical picture. We saw the essentials shaping themselves in his mind. We learnt to see, to think, and to integrate as the signs were elicited and the picture built up—all this was new to us, and marked not a renaissance but the birth of neurology in Melbourne. A year or two afterwards the late Richard Stawell, who had been physician to the children's hospital, was appointed to the out-patient department of the Royal Melbourne Hospital. There is no subsequent graduate of this hospital who is not deeply indebted to these two men; each adopted the Socratic method of teaching, and together they started the second era of medicine in Melbourne. After them, succeeding generations of physicians and surgeons have played their part in advances in this department of medicine.

Maudsley was equally able in other branches of medicine. Specialization had not at that time reached the stage it holds to-day. Nor must his personal and human side be passed without some comment. Whenever something new appeared in the medical journals that gave promise of being an important advance, he would seek out a young graduate and say, "You are young, you have the time, you must work this out in the University laboratories, and see if it is true, and if it is of value."

Mr. ARTHUR DOUGLAS COWBURN, M.R.C.S., formerly coroner for South London, who died on March 27, was born at Queensferry in November, 1869, son of Capt. Arthur Cowburn, R.N. From Charterhouse he went to study medicine at St. Thomas's Hospital and qualified in 1897. After being called to the Bar in 1903 and taking the D.P.H., he was for a number of years M.O.H. to the Inner and Middle Temples. In 1912 he became deputy coroner for the Western and several other districts of London. He served in the R.N.V.R. during the last war, mainly at sea, and reached the rank of surgeon captain; after demobilization he became deputy coroner for the North-East London district and in 1924 coroner for the Southern district, from which post he retired in 1939. Cowburn held office as secretary of the Section of State Medicine and Industrial Diseases at the Birmingham Meeting of the B.M.A. in 1911; in 1935 he was elected president of the Coroners' Society; he had also been a member of the council of the Medico-Legal Society for a long period. When he took up his duties as coroner in South-West London he organized in co-operation with King's College Hospital a panel of pathologists to make post-mortem examinations, and he was instrumental in reforming the mortuaries within his district. His kindly consideration for the bereaved was much appreciated by all who attended inquests held by him.

The death of Dr. PERCY JAKINS at the age of 88 has left an honoured memory in the minds of those who can recall him as a member of the active staff of the Royal National Throat, Nose & Ear Hospital, and especially in the minds of those of his surviving colleagues at that hospital, which he served so well and with such complete unselfishness for over 30 years. Jakins came on the staff in 1885 and retired at the age limit shortly after the outbreak of the last war. He remained at his post during the difficult war years until 1918. His help during that time was invaluable. He was a man of kind and genial temper, simple in manner, and easy of approach. He was very human, and his lively sense of humour endeared him to all with whom he came into contact, whatever their rank in life. He took a particularly close interest in the welfare of the nursing and other staff of the hospital, and they all had a warm affection for him. In his professional work Jakins was of a sound sense and excellent judgment. Trained as a physician, he had, in the main, the physician's outlook, but became a deft, confident, and successful operator, especially in the surgery of the temporal bone. He never attempted too much. He knew what he could not do, but he knew with equal clearness what he *could* do, and that he did right well. Little influenced by new theory or by the bright promise of novel ideas, his eyes, in the field of surgery, were not out upon the horizon, but committed to here and now. For him was no "brave music of a distant drum." His patients were sincerely attached to him, and for a man to be held in such affectionate regard by such large numbers is no mean tribute; this tribute Jakins indeed had in overflowing measure. With him passes one of the pioneers of otology and laryngology and one of those early workers who helped to found the name and repute of the Royal National Throat, Nose & Ear Hospital.—A. R.

Dr. NORMAN MACNAIR died on April 5 after a long and painful illness, borne with much fortitude and courage. He had a serious heart attack about seven years ago, followed soon after by a cerebral embolism, which curtailed his mental activities and made him almost totally bed-ridden. Dr. Macnair was educated at the Glasgow Academy and the University of Glasgow, afterwards continuing his education as a postgraduate in Vienna. He was a distinguished student, and at an early age obtained many degrees and diplomas, which were to assist him in his work as a practitioner in the West End of Glasgow. He took the B.Sc. of Glasgow University in 1894, M.B., C.M. (with commendation) 1897, M.D. 1899, M.R.C.S., L.R.C.P. London 1897, F.R.F.P.S.G. in 1902. He was house-physician, and afterwards assistant physician, in the Royal Infirmary, where he was closely associated with his teacher Dr. George S. Middleton, for whom he had the greatest respect. He was for a time assistant surgeon to the Glasgow Ear Hospital, where he learned much that proved of great value to him in his practice. He was also house-physician and assistant physician to the Royal Hospital for Sick Children—a position which he almost cherished most, as it brought him in contact with children, to whom he was devoted. With all this experience and preparation, it was not surprising that when he started in general practice he very soon had a large number of patients. As his practice grew, he became associated with the late Dr. Berkeley Robertson, who died a few years ago. His success, however, depended greatly on the man himself. He had a retiring and gentle disposition, and was at his best with his patients and with his medical friends. He avoided publicity, and took little part in public affairs and medical politics. In his earlier years he was a keen golfer and played a good game, but in his latter years, owing to ill-health, he interested himself in gardening. He built a small bungalow on the top of a hill among the green-topped hills of Lanarkshire, and for many years spent almost every week-end in his delightful home, with a garden full of alpine plants and heather. For the last few years after his enforced retirement he has lived there completely, enjoying as much as possible the secrets of Nature. He was fond of music, playing the violin at one time, but mostly devoting himself to singing. He had a beautiful clear soft tenor voice that gave great pleasure to his many friends at home and at medical dinners. He was a gentleman to the backbone, and his loss will be greatly deplored by all who knew him. Our sincere sympathy goes out to his wife, who helped to nurse him during these last seven trying years.—J. S. McK.

Dr. JAMES ROBERT NICOLL died on Oct. 24, 1943, at his residence, Toowoomba, Queensland, at the age of 85. He was born at Rhynie, Aberdeenshire, where the Nicoll Hospital has been erected in memory of his parents, the Rev. Alexander and Mrs. Nicoll. He was educated at Rhynie and Aberdeen Grammar School and graduated M.A. in 1878, M.B., Ch.M. in 1882 at the University of Aberdeen. In the following year he went to Queensland, where he held posts as health inspector at Brisbane and Mackay and as assistant medical superintendent at Goodua Mental Hospital, and in 1897 became medical superintendent at the Willowburn Mental Hospital. His work there during 30 years became well and favourably known throughout Queensland. Retiring at the age of 70 he lived at Southport, Brisbane, and later at Toowoomba. He was a generous supporter of all good causes and was held in high esteem. A tribute from a colleague of many years said of him: "Dr. Nicoll will long be remembered with affection by all those who knew him." Inquiries and expressions of sympathy were many,

during his illness, from old hands at Willowburn, both staff and patients. His long years of faithful and humane service endeared him to all who came in contact with him. One envied many of his qualities, his unfailing kindness, equable temper, remarkable memory and all-seeing eye, a physician, a scholar, and a gentleman! Truly one of the "old school."

Dr. W. E. Rutledge writes: It is many years ago that a suggestion was made to the Rev. SAMUEL HANNA that, being interested in theology and medicine, a medical degree was the only solution of his desire to understand more of the workings of the body as well as the soul. I was a medical student then, and made this suggestion. A few weeks later this idea was taken up, and thenceforth the then Presbyterian minister was on his way not only to get new ideas for his sermons but to becoming what he desired above all, a greater influence for good in the world, by being able to work in a dual capacity. After qualifying at Queen's University, Belfast, Hanna practised medicine in his spare time, and continued his work in the Church. Indeed, for a long time there were few churches in the city that could boast of the overflow of congregations eager to hear one of such outstanding personality, who was practising as a doctor and spiritual adviser at the same time. This man of strong opinions and kindliness of heart, whom I have known as a personal friend for many years, must have surely been unique in the medical world. One interesting incident in his postgraduate career is worth reporting. While doing a locum for a country doctor, one of his patients died. At the request of the local clergyman he took part in the service at the graveside. Those present at the funeral looked in amazement at a doctor so joining in the service.

Universities and Colleges

UNIVERSITY OF LEEDS

The following candidates have been approved at the examinations indicated:

M.D.—J. Benn.

FINAL M.B., CH.B.—*Part II:* F. E. Aaron, V. Altman, W. Boyes, Joan S. Brierley, Joyce M. F. Brigg, G. H. Briggs, J. L. Capper, Barbara E. Clapham, H. F. Claye, H. H. Collins, S. Cope, Betty Craig, T. Debney, J. Exley, G. W. Knight, E. Lyons, R. H. Merrick, Margaret D. Oakley, W. H. Oesterlein, D. E. H. Robertson, N. V. Sapler, Sheila F. Schofield, R. H. Seville, P. M. Smith-Moorhouse, G. A. Stanton, S. B. Tomlinson, E. Wolffenstein, C. J. E. Wright.

UNIVERSITY OF WALES

WELSH NATIONAL SCHOOL OF MEDICINE

The following candidates have satisfied the examiners at the examination indicated:

M.B., B.CH.—*Medicine:* I. F. Barwell-Clarke, E. R. Edmunds, A. J. Evans, A. D. Evans, Marguerite J. Hennelly, J. C. Hughes, D. C. W. Jenkins, *D. I. Jenkins, C. R. Jones, C. C. Lewis, D. A. Macfarlane, Mary W. Owen, Winifred S. Phillips, I. Rees-Mathews, F. W. Richards, E. G. G. Roberts, T. H. L. Rosser, L. P. Thomas. *Pathology and Bacteriology:* D. Anthony, W. H. Beasley, B. L. Crystal, L. G. G. Davies, J. H. Edworthy, E. M. L. Evans, Hannah P. Evans, L. A. J. Evans, Myrddin Evans, Joan Guy, J. C. Ham, B. E. Heard, I. D. Jacobs, P. G. Jagger, Jane W. James, W. J. Jenkins, D. G. Jones, D. O. Lewis, D. R. Lewis, W. T. Lloyd, Joy A. Macgregor, Barbara D. S. Marshall, Isobel F. A. Mitchell, Margaret Owen, D. B. Price, Enid A. Reed, E. G. Rees, R. M. E. Seal, D. R. Thomas, D. V. Thomas, Glenys M. Thomas, D. Tooms, L. L. R. White, Catrin M. Williams, D. M. Williams, P. R. J. Williams. *Surgery:* Joan Collins, D. M. Davies, S. W. V. Davies, T. K. Davies, Eileen J. Evans, H. J. Fisher, J. C. Hughes, R. G. Hughes, D. I. Jenkins, H. O. Jones, Alice M. A. Lee, D. A. Macfarlane, Eiry Morgan, Isabella M Pinkerton, G. D. Powell, D. B. Richards, F. W. Richards, W. Stevenson, Gertrude G. Thomas, L. P. Thomas, Vivien V. Tracey, Mary L. Williams.

* With distinction.

UNIVERSITY OF ST. ANDREWS

The following medical degrees were conferred at a graduation ceremony on April 6:

M.D.—Sheila T. E. Callender (with honours for thesis and University Gold Medal), J. Sime.

CH.M.—H. A. Haxton.

M.B., CH.B.—[1]Minnie K. Herring, [2]L. Frain-Bell, [2]S. Bayne, [2]H. B. Goodall, [2]N. K. Smith, [2]Margaret B. Noble, [2]J. E. Hilton, [2]J. M. Johnstone, [2]R. M. Milne, [2]Janet E. Beattie, J. M. Anderson, Ellice A. Baird, Jeanne M. Bower, D. M. Caird, J. C. Campbell, Margaret A. Curr, C. Fleming, M. Fletcher, H. G. Ford, J. C. Forfar, I. M. Grant, T. P. Grant, Dorothy A. J. Hamilton, Beryl R. Law, T. R. Macdonald, J. L. Mackenzie, W. J. McLaren, K. Milne, J. T. Paton, Margaret S. Purvis, Patricia J. S. Robertson, Winifred M. Ross, E. H. Russell, A. M. Stalker, J. Stohlner, M. D. Thomson, T. P. Venning, A. G. Watson, H. E. R. Wem, Elizabeth R. Younger.

Prizes were awarded as follows:

Low Memorial Prize for the Most Distinguished Graduate: Minnie K Herring.
Royde's Memorial Prize in Medicine and Pathology: H. B. Goodall.
MacEwan Prize in Surgery: I. M. Grant.

[1] With distinction. [2] With commendation.

ROYAL COLLEGE OF PHYSICIANS OF LONDON

At the meeting of the Royal College of Physicians of London held on April 3 Lord Moran was re-elected President of the College.

Medical Notes in Parliament

Ensuring Cleanliness of School-children

During the Committee stage of the Education Bill in the House of Commons on April 4 Mr. EDE moved a new clause (Power to Ensure Cleanliness). The clause provided that if in the opinion of a medical officer of a local education authority there was reasonable cause to suspect that the person or clothing of a pupil was infested with vermin or in a foul condition, he might cause an examination to be made, and if the person or clothing was found to be so infested, etc., a notice requiring the person and clothing to be cleansed might be served on the parent or pupil. The clause also provided that no girl should be examined or cleansed under the powers conferred by the clause except by a duly qualified medical practitioner or by a woman authorized for that purpose by a local education authority.

The clause was added to the Bill.

Casualties of British Empire

Mr. CHURCHILL announced on April 4 that during the first four years of war casualties to all ranks of British Empire Forces, excluding deaths from natural causes, were: killed 158,741, wounded 159,219. For the United Kingdom the casualties in the Forces were: killed 120,958, wounded 93,622. Civilian casualties in the United Kingdom during the first four years of war were: killed 49,730, injured and detained in hospital 59,371. These latter figures did not include civilian casualties at sea. Casualties to merchant seamen on British ships during the same four years included 26,317 deaths.

Smallpox at Mount Vernon Hospital

Mr. VIANT asked on April 5 whether the Secretary for War knew that a soldier who had been successfully vaccinated in infancy and again two years ago introduced smallpox into the Mount Vernon Hospital and spread the infection to 11 other people; and whether, in view of the fact that vaccinated soldiers contracted smallpox during this war, he would either stop all leave of troops to any part of the country where smallpox cases occurred, or make no distinction between vaccinated and unvaccinated men. Sir JAMES GRIGG said he knew that this soldier had been vaccinated successfully in infancy and again in 1942. Owing to the protection thus given him he had a mild attack of smallpox in spite of the fact that the strain was a virulent one. Experience showed that in the interests of the health of the troops it was necessary to maintain the policy he had previously outlined.

Northern Ireland Parliament

The Government of Northern Ireland has acted promptly on the recommendation of the Select Committee on Health Services by introducing into Parliament a Bill for the setting up of a Ministry of Health and Local Government. The chairman of the committee was Mr. Howard Stevenson, F.R.C.S., who is also one of the Members of Parliament for Queen's University. Moving the second reading of the Bill on April 4 the Prime Minister, Sir BASIL BROOKE, said it gave effect to the main recommendation of the Select Committee on Health Services. The Government were in full agreement with the committee that the time had come to concentrate all these services in one Department under a Minister specially charged with their supervision. He expressed the Government's appreciation of the comprehensive way in which the whole field of health services had been reviewed by the committee. The Prime Minister explained that under Clause 1 of the Bill the proposed Ministry would be responsible for the administration of health, housing, and local government services. The health services could not be divorced from housing conditions.

"We fully recognize," Sir Basil Brooke proceeded, "that the most up-to-date methods for the prevention and cure of illness must be made available to the greatest extent possible for those who require medical attention, and to this end the new Ministry will apply itself. The only method by which the general standard of health can be improved and maintained is by the provision of better housing conditions. These two important matters are closely linked with our system of local government. All these services are interdependent, and the Government consider that the responsibility for health, housing, and local government should rest with one Department. I feel sure that this measure will mark an important stage in our progress towards the creation of better conditions of health and housing, and that it will commend itself to the House as a whole."

In the course of the debate Dr. LYLE (Mr. Howard Stevenson's co-member for Queen's University) strongly urged that the new Ministry should include all health services, including health insurance and the inspection and treatment of school-children.

The Services

Surg. Lieut.-Cmdr. W. F. Viret, R.N., and Temp. Surg. Lieut. R. Rhydwen, R.N.V.R., have been awarded the D.S.C., and Acting Surg. Lieut.-Cmdr. B. F. Jackson, R.N.V.R., has been mentioned in dispatches. These names appear in a list of awards published by the *London Gazette* for undaunted courage, determination, and endurance in certain of H.M. ships in many sweeps against enemy shipping in the Aegean under fierce and constant attack from the air, and in maintaining supplies to the islands of Kos and Leros until they fell to superior enemy forces.

The *London Gazette* has announced the appointment as M.B.E. (Military Division) of Capt. W. R. Hart, I.M.S., in recognition of gallant conduct in carrying out hazardous work in a very brave manner.

Capt. (Temp. Major) J. Swinney, R.A.M.C., has been awarded the M.C. in recognition of gallant and distinguished services in Italy.

Surg. Lieut.-Cmdrs. J. F. M. Milner and T. Colver, R.N.V.R., have been awarded the R.N.V.R. Officers' Decoration.

CASUALTIES IN THE MEDICAL SERVICES

Wounded.—War Subs. Capts. W. Foster and J. Wilson, R.A.M.C.

Prisoners of war.—Lieut.-Col. J. W. Craven, M.C., T.D., R.A.M.C.; Temp. Major M. T. Read, M.C., R.A.M.C.; Acting Major V. Bennett, R.A.M.C.; War Subs. Capts. D. F. Rees and W. P. Wallace, R.A.M.C.; Lieuts. W. Donaldson and T. Wilson, R.A.M.C.

Missing, presumed killed.—Acting Surg. Lieut.-Cmdr. B. F. Jackson, R.N.V.R.; Temp. Surg. Lieuts. H. C. Llewellyn and J. H. Wainwright, R.N.V.R.

Killed in action.—Capt. C. Greenwood-Penny, R.A.M.C.

Died on active service.—Surg. Lieut. M. J. Hood, R.N.V.R.

Died at a Casualty Reception Station.—Capt. E. A. Walker, M.C., R.A.M.C.

Medical News

The second of the film shows arranged by the Leeds Division of the B.M.A. with the co-operation of the Ministry of Information will be given at the Majestic Cinema, Leeds, on Sunday, April 23, at 3 p.m. The programme will include "Of One Blood," "Man Wounded," and "Plastic Surgery" (in technicolour). All doctors in the area are cordially invited.

Lord Moran, P.R.C.P., will speak on "The Future of Medical Education" to the members of the Polish Medical Association and their guests on Tuesday, April 25, at 4.30 p.m. in the Great Hall, B.M.A. House, Tavistock Square, W.C. Dr. George de Swiet (Hon. President) will take the chair. After discussion the vote of thanks will be proposed by Prof. A. Jurasz, F.R.C.S.(Hon.), Dean of the Polish Medical School, Edinburgh. Medical men and women of all nationalities are welcome.

H.R.H. the Duchess of Kent will attend a special meeting of the National Council for Mental Hygiene at Manson House, 26, Portland Place, W., on Wednesday, April 26, at 3.30 p.m., with Lord Alness in the chair. Dr. Helen Boyle will give an address, followed by the showing of a film.

The annual meeting of the Central Council for the Care of Cripples will be held on Thursday, April 27, in the Cowdray Hall, Henrietta Place, London, W.1, at 2.45 p.m., when Col. Rex Diveley, senior consultant orthopaedic surgeon to the United States Army, will speak on "The Care of Cripples in the United States." Tickets of admission may be had from the Secretary, C.C.C.C., 34, Eccleston Square, S.W.1.

Under the auspices of the British Council and the Ministry of Information a film entitled "Surgery in Chest Diseases" was shown in the Great Hall of Queen's University, Belfast, on March 13. The audience was a large one and included, in addition to the local medical fraternity, many American medical officers and senior medical students.

The William Blair Bell Memorial Lecture will be given at the Royal College of Obstetricians and Gynaecologists, 58, Queen Anne Street, London, W.1, on Saturday, April 29, at 3 p.m., by Dr. H. R. MacLennan. His subject is "Contracted Pelvis in Childbirth." Medical practitioners are invited to attend.

Dr. C. H. Best, F.R.S., professor of physiology in the University of Toronto, has been elected a member of the Athenaeum under the rule for special elections.

The Ministry of Labour and National Service, St. James's Square, S.W.1, has issued a leaflet on the training and resettlement of disabled soldiers, with an appendix on training courses in industrial and other occupations. The various facilities now available for disabled persons are briefly described.

At a meeting of the Medical Society for the Study of Venereal Diseases to be held at 11, Chandos Street, Cavendish Square, W., on Saturday, April 29, at 2.30 p.m., Major D. I. Williams, Major C. S. Nicol, and Lieut.-Col. A. J. King, R.A.M.C., will give a review of experience during the past four years in sulphonamide treatment of gonorrhoea in the male. On Saturday, May 20, Prof. A. Fleming will give an address on penicillin.

The Delhi correspondent of the *Times* reports that Prof. A. V. Hill, M.P., Secretary of the Royal Society, who will return to England soon after a stay of five months in India, has spoken to newspaper correspondents about a forthcoming visit of Indian scientists to England. The delegation will include Col. H. L. Batra, deputy director of the Indian Medical Service, Sir S. S. Bhatnagar, F.R.S., director of the Advisory Board of Scientific and Industrial Research, Sir J. C. Ghosh, director of the Indian Institute of Science, Bangalore, and Professors S. K. Mitra and M. M. Sar, of Calcutta.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* the notifications for scarlet fever, diphtheria, and dysentery exceeded those of the previous week by 61, 48, and 35 respectively, but those for measles and whooping-cough were lower by 114 and 113.

The returns for diphtheria were the largest for nine weeks, there being a slight rise throughout the country. The local trends of whooping-cough fluctuated, the drop being most pronounced in the south, and the largest rise in Lancashire 36. After mounting continuously for eleven weeks, the incidence of measles fell, particularly in Kent, the Isle of Wight, and London, where notifications were 81, 69, and 63 respectively fewer than in the previous week. In contrast to the general trend, a rise of 157 in the notifications of measles was reported from Lancashire, Liverpool C.B. recording 40 more cases than last week, Manchester C.B. 23, Atherton U.D. 51, and Golborne U.D. 20.

The incidence of dysentery, which has been at a high level this year, rose by 35, and the total—309—is the largest for any week during the past six months. Since the outbreak of war there has been a rise in the endemic level of this disease. It is probable that many cases escape notification, and consequently the amount of ill-health due to dysentery is much larger than the returns indicate. Centres of infection during the week were: London 55 (Lewisham 22); Lancashire 53 (Blackburn R.D. 31); Surrey 41 (Wimbledon M.B. 25); Northants 30 (Kettering M.B. 27); Middlesex 18; Staffordshire 14.

In *Scotland* notifications of measles showed a rise of 59 over last week's total, diphtheria a rise of 27, cerebrospinal fever of 22, and whooping-cough of 12, but notifications for scarlet fever dropped by 38, and those of dysentery by 33. The only local increases of note were in the City of Glasgow, where measles notifications mounted by 86 cases, and those of cerebrospinal fever by 19. The largest returns for dysentery were: Lanark County 19, Glasgow 18, Edinburgh 14, Dundee 10.

In *Eire* the notifications of measles were 32 higher than last week, and those of diphtheria were 12. Diphtheria is widespread, involving forty registration districts. Over half of the cases of measles and nearly half of the cases of whooping-cough were notified in Dublin C.B. One case of typhus was notified in Galway, Oughterard R.D.

In *Northern Ireland* there was little change in the trend of infectious diseases. 43 of the 78 cases of scarlet fever were reported from Belfast C.B.

Quarterly Returns for Eire

The birth rate during the last quarter of 1943 was 20.7 per 1,000, being 0.6 below the rate for the December quarter of 1942, but 2.2 above the average for the corresponding quarters of 1938–42. Infant mortality was 81 per 1,000 registered births, and was 9 above the average for the five preceding fourth quarters. The general death rate was 14.8 per 1,000, being 1.6 above the five-year average. Deaths from pulmonary tuberculosis numbered 690, and other forms of tuberculosis 178, respectively 65 and 2 fewer than in the preceding fourth quarter, but 68 and 16 above the five-year average.

The summary for the whole of 1943 is included in the report. The birth rate during the year was 22.3, being the same value as recorded in 1942. The infant mortality per 1,000 registered births was 80; during the preceding five years the rate had varied between 66 and 74. A general death rate of 14.7 per 1,000 was recorded, this being 0.6 greater than in the preceding year and than the five-year average. Deaths from pulmonary tuberculosis numbered 3,366, a decrease of 146 from the total of the preceding year but 484 above the average for 1938–42. 854 deaths were attributed to other forms of tuberculosis, an increase of 19 on the preceding year and 85 above the five-year

average. Deaths from the principal infectious diseases were 1,912, an increase of 237 on the preceding year and 596 in excess of the average of 1938–42. Almost two-thirds (1,191) of the deaths in this classification were due to diarrhoea and enteritis under 2 years; the number registered in Dublin C.B. was 609. The number of deaths from whooping-cough was 297 and from diphtheria 309, these being in excess of the average of the five preceding years by 120 and 75 respectively. 28 deaths were attributed to measles; during the five preceding years the deaths had fluctuated between 77 and 102.

Week Ending April 8

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 2,089, whooping-cough 1,558, diphtheria 554, measles 2,343, acute pneumonia 1,003, cerebrospinal fever 78, dysentery 250, smallpox 1, paratyphoid 2, typhoid 9.

Where to Treat Scarlet Fever

We have received from Dr. W. A. Bullough, County M.O. for Essex, a memorandum on scarlet fever issued by the Essex Epidemiological Committee for the guidance of practitioners in that county. The memo points out that the mildness of scarlet fever makes the former administrative control largely unnecessary. Scarlet fever is only one of the many manifestations of infection with Group A haemolytic streptococci; there is therefore no justification for isolating in hospital individuals with streptococcal sore throat and a rash, and not those with a similar sore throat and no rash. To do so does not protect the community. But it is impracticable to remove to hospital all with streptococcal sore throats. Whether or not hospital treatment should be given must be decided by the needs of the patient. Cross-infection, largely responsible for the complications of scarlet fever, does not occur if the patient is nursed at home; this is one of the main reasons for advocating home treatment wherever possible.

The possibility of the spread of infection by milk or foods consumed uncooked cannot be ignored, nor can the risk of infecting a woman in the later stages of pregnancy. A case of scarlet fever in a household containing a food-handler or a woman approaching confinement should therefore not be nursed at home. Admission of cases of scarlet fever to hospital should be determined by: (1) the severity of the disease; (2) the home nursing facilities; (3) the employment of another member of the household in the preparation or distribution of food for public consumption; and (4) the approaching confinement, say within one month, of any female in the patient's home.

Comment

The memorandum on scarlet fever summarized above is a useful move in tackling the complex problem of streptococcal infection. The occurrence of scarlet fever in an individual requires at least three components: a toxigenic haemolytic streptococcus, a low antistreptococcal immunity which allows the local throat infection, and a lack of antitoxin to the erythrogenic toxin which causes the rash. If antitoxic, but not antibacterial, resistance is present, streptococcal tonsillitis without rash will result. Thus in the same household or school a streptococcal outbreak will be manifested by patients with scarlet fever, others with tonsillitis, and still others who are symptomless carriers of the organism; so that from the point of view of controlling spread of the infection there is little to be gained by isolating the case or cases of scarlet fever and leaving the others at large. The severity of scarlet fever in the past meant that hospitalization was necessary for the proper care and nursing of affected patients. In recent years, with scarlet fever a relatively benign infection and with the realization of the greater need for hospital care of children with measles and pertussis, many local authorities have increased the accommodation for the latter at the expense of scarlet fever. But tradition dies hard, and too many medical men, as well as the lay public, still believe that scarlet fever is a dangerous disease and ought to be nursed in an isolation hospital. In hospital the patient with scarlet fever is usually nursed in an open ward along with other cases of the same disease. Although all have scarlet fever, the infection is caused by half a dozen or more different serological types of the haemolytic streptococcus, and recent work has shown that many of the secondary complications of scarlet fever—e.g., adenitis, otitis media, and relapse—are due to cross-infection with a different serological type of the organism from that causing the original infection. Another drawback to hospital treatment is that the patient frequently acquires a new type of streptococcus which he carries home to infect other members of the family. Thus Forbes (*Lancet*, 1936, **2**, 1438) in Brighton has shown that, although home nursing of scarlet fever increased the incidence of secondary cases among household contacts, "return" cases were greatly in excess in the hospital-treated series, and the total incidence of infected contacts was about the same in the two groups.

No. 13

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended April 1.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1944					1943 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	86	10	38	7	6	108	4	32	6	4
Deaths		2	1				—	1		
Diphtheria	724	39	201	119	30	798	45	185	96	22
Deaths	11	2	5	4	—	17	1	2	3	—
Dysentery	309	55	103	1	—	109	18	35	—	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	1	—	—	—	—	3	—	—	—	—
Deaths		—					—			
Erysipelas			40	14	1			51	8	7
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				5					25	
Deaths	53	10	12	13	3	56	12	5	11	4
Measles	2,643	300	436	406	9	19,568	1,166	674	12	99
Deaths	—	—	1	2	1	22	—	3	—	—
Ophthalmia neonatorum	74	4	21	—	—	90	6	19	—	—
Deaths										
Paratyphoid fever	—	—	2(B)	—	—	3	—	2	—	—
Deaths	—	—	—		—	—	—	—		—
Pneumonia, influenzal*	1,277	88	11	23	3	1,494	86	13	7	13
Deaths (from influenza)	32	2	4	1	1	67	9	—	2	1
Pneumonia, primary			266	33				304	38	
Deaths		59		22	16		60		10	24
Polio-encephalitis, acute	—	—				—	—			
Deaths		—					—			
Poliomyelitis, acute	6	1	—	—	—	6	—	1	1	1
Deaths		—					—			
Puerperal fever		3	16		—		2	31		—
Deaths										
Puerperal pyrexia†	168	11	16	4	2	161	16	19	4	—
Deaths		—					1			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	2,450	165	243	27	78	2,213	180	282	43	49
Deaths	2	—	—	—	—	1	—	—	—	—
Smallpox	1	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	5	—	—	10	3	15	2	7	16	—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	1	—	—	—	—	9	—
Deaths				—	—				—	—
Whooping-cough	2,141	212	116	88	16	2,078	177	214	15	23
Deaths	13	2	—	7	1	11	2	4	1	1
Deaths (0–1 year)	396	56	84	52	25	423	53	79	41	43
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths)	5,076	823	631	289	151	4,962	707	650	253	187
Annual death rate (per 1,000 persons living)			14·5	18·9	‡			14·7	16·6	‡
Live births	7,451	903	959	439	299	6,773	786	969	398	292
Annual rate per 1,000 persons living			19·5	28·7	‡			19·8	26·2	‡
Stillbirths	217	17	31			219	28	47		
Rate per 1,000 total births (including stillborn)			31					46		

* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes puerperal fever for England and Wales and Eire.

‡ Owing to evacuation schemes and other movements of population, birth and eath rates for Northern Ireland are no longer available.

Letters, Notes, and Answers

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Aitiology Westcent, London.* ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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ANY QUESTIONS?

Ending Lactation

Q.—*Nineteen days ago a woman began a ten-day course of stilboestrol to end lactation. The flow of milk has ceased, but it is still possible to express a drop of milk from the nipples. How long should it be before the breasts dry up completely?*

A.—If the breasts are not stimulated by attempts at expression, suction, or other local interference, production of milk will probably cease completely within a few weeks. A definite period of time cannot be stated, since it is known that in some women milk, or at least some fluid secretion, can be expressed from the nipples for many years after breast-feeding has been discontinued.

Recurrent Ulcers on Tongue

Q.—*A married woman aged 35, with one child, has had small ulcers on her tongue and buccal mucous membrane for about eighteen months. No septic focus can be found. The teeth are normal; Wassermann negative; fractional test meal and blood count normal. These ulcers occur in crops about every 10 to 14 days, last about a week, and then there is a period of freedom for about a fortnight. When the patient was at the seaside for about a month the lesions disappeared. The diet is good and she is having vitamin C and nicotinic acid. How should I treat the condition?*

A.—A series of questions on this topic has been answered since this column was opened, and it is obvious that this type of stomatitis is both common and intractable. It is probably due to infection by the virus of herpes simplex, and like other manifestations of this disease it may be aggravated by local irritation, systemic disease, or emotional upsets. The lessening of work and worry probably accounts for the relief at the seaside. A mixture containing 10 gr. of potassium chlorate and 10 minims of tincture of perchloride of iron per dose is an old-fashioned remedy which may be given every four hours to abort an attack when the premonitory symptoms occur. A simple alkaline antiseptic mouth-wash may also be useful. If the ulcers are very painful they may be painted with silver nitrate or gentian violet, or powdered with orthoform in a mixture of chlorbutol and boric acid. To prevent recurrences, vaccination of the subject on the skin of the limbs or buttocks has been recommended, either with the clear fluid obtained from the vesicles or with ordinary vaccinia lymph. It would be wise to consult a virus pathologist before embarking on the former of these procedures, to avoid the risk of transmitting some other infection.

Early Closure of Fontanelle

Q.—*A female infant 15 weeks old has her anterior fontanelle completely closed. Since this is unusual, can you give me any further information on the subject?*

A.—Early closure of the fontanelle always raises the unfortunate suspicion of microcephaly. Hence it is important to measure the skull carefully and at intervals to make sure growth is taking place. On the other hand, although uncommon, this early closure is apparently quite consistent with a perfectly normal development of brain and skull. If the child is attempting to hold up her head, and otherwise seems normal, the fontanelle closure can be ignored

Venereal Diseases Listed

Q.—*How many venereal diseases are there? I can name gonorrhoea, syphilis, poradenitis venerea, soft sore, scabies, pediculosis pubis, herpes praeputialis, granuloma venereum. What is soft sore, and where is it described? What connexion, if any, has Ducrey's bacillus with the above?*

A.—How many venereal diseases there are depends on the definition; officially there are three: syphilis, gonorrhoea, and soft chancre. Many people regard any disease arising directly as a result of promiscuous sexual intercourse as venereal. The list given seems fairly comprehensive, and the only additions suggested are condylomata acuminata (warts), gangrenous balanitis, and bacterial urethritis (non-gonococcal in origin).

Soft sore is another name for ulcus molle, soft chancre, or chancroid. A description of it will be found in any good textbook of venereal disease. It is an acute localized auto-inoculable genito-infectious disease, characterized clinically by necrotizing ulceration at the site of inoculation; the ulcerations are commonly accompanied by inflammation of the regional lymphatic glands, which show a marked tendency to suppurate. The condition is generally held to be caused by an organism known as *Haemophilus ducreyi*, which is a short bacillus growing in chains (streptobacillus).

Keloid Vaccination Scar

Q.—*I was called to see a baby whose arm I had vaccinated 9 months previously. On the site of vaccination I found a raised pink keloid type of scar instead of the usual somewhat depressed and whitened type. The mother thinks that this may be getting redder and larger. The vaccination ran a normal course at the time without any complications. In ordinary wound healing one associates this type of scar with the so-called "tuberculous diathesis," but there is no history of this. But lymph is associated with calves, calves with cows, and cows with bovine tuberculosis. I have been vaccinating a good number of years now, but have not seen this before.*

A.—The suggestion that keloid is associated with a tuberculous diathesis has no foundation in fact. Overgrowth of fibrous tissue after trauma or inflammation seems to be an individual idiosyncrasy, and may follow healing by first intention as well as by granulation after infection. The chances of acquiring tuberculous infection by vaccination with calf lymph must be millions-to-one against. The 1928 Report of the Committee on Vaccination states that between 1911 and 1925 no deaths attributable to tuberculosis occurred among 5½ million vaccinated babies, who incidentally would be very susceptible to tuberculous infection. Great precautions are taken against the risk of contaminating vaccine lymph by pathogenic bacteria or viruses. Thus, every animal is examined post mortem after the lymph has been harvested, and the batch is rejected if there is any evidence of tuberculosis or other disease. Again, while the Government Establishment lymph is from calves, other brands—e.g., that of the Lister Institute—are prepared in sheep, which are practically immune to tuberculosis. Keloid is perhaps best treated by radium or *x* rays, although surgical excision need not give rise to fresh keloid.

Primogeniture in Multiple Births

Q.—*There has been some argument in this part of the world (Deccan, India) as to who is considered legally the elder in a case of twins or triplets. Is it the one that is born first or last? An Indian lawyer of repute is said to have proved to a jury that the last-born is the elder. He produced in court a narrow bottle and two ping-pong balls. He placed them one after the other in the narrow bottle. Then they were "reproduced." The ball that had gone in first was the one that came out last. From this he argued that the last-born was the first conceived, and so the elder.*

A.—All enduring legal rules are based on practical experience and possibility of proof. Whereas the exact moment of conception is still a matter of guesswork, the exact moment of birth can nearly always be fixed by evidence. Primogeniture is therefore a satisfactory test of seniority in many systems of law apart from ours, without doubt also in that of the ingenious advocate's forefathers.

Size of Penis

Q.—*I have been asked by several patients during the past year or two whether "sex-gland treatment" will increase the size of the penis. In most instances potency has been normal, but the patient has the impression that the penis is abnormally small. Has the male hormone any effect in such cases?*

A.—The size of the penis varies considerably among normal men. It is therefore probably determined genetically, as well as endocrinologically, and it is well known that, in addition to the concentration of hormones in the blood, the intrinsic responsiveness of the tissues, or organ, determines the final result of the hormone stimulation. In these circumstances, therefore, it is unlikely that the administration of testosterone would have any effect.

Quite apart from the reality of the dimensions, many men suffer from an inferiority complex, especially in relation to the genitals, and imagine that their penis is smaller than it should be. In the presence of normal potency reassurance on this point, with some explanation of the psychological mechanism, is often sufficient. Where potency is psychologically impaired, more extended psychotherapy is necessary. Where the penis is small *because of hypogonadism*, testosterone therapy is of benefit. It may be administered by injection of 25 mg. testosterone propionate three times weekly, or by methyl testosterone tablets, 5 mg., dissolved under the tongue t.d.s., both procedures to be carried out for some months; or by

the subcutaneous implantation, under local anaesthesia, of 6 tablets of 100 mg. testosterone, the effect lasting six to twelve months. This treatment, however, will not increase the size of the testes and may even diminish them by pituitary inhibition. Should, therefore, the endocrine disorder be due to a primary pituitary deficiency, the testosterone treatment should be followed by, or combined with, gonadotrophic therapy.

INCOME TAX

Sale of Property: Tax on Civilian Earnings

M. G. recently sold a house, making £300 profit on the sale. Is this liable to income tax? Should he be paying tax on civilian earnings up to June, 1942?

*** Assuming that the house was not bought with the intention of selling it to make a business profit out of it, the £300 represents a "capital" profit and is *not* taxable. Apparently the civilian earnings ceased at June, 1942; if so no tax would be payable thereon for a subsequent period, but M. G. would normally be liable to discharge any tax due for the period to that date, and there might be some delay on the part of the authorities in applying for the payment. If, however, tax on civilian earnings remains unpaid, M. G. should ask for it to be held over as he would seem to have a claim under Section 6 of the Income Tax (Offices and Employments) Act, 1944, for relief to the extent of the unpaid tax.

Rent for Consulting Rooms

"DELTA" started a consulting practice a year ago, living in temporary accommodation at £2 2s. to begin with and subsequently renting a furnished house at £5 15s. 6d., as a fixed address and telephone number were essential. What rent can be set against his professional receipts?

*** The normal basis of calculation is to apply the ratio of private to professional use, and "Delta" would find it difficult to avoid that basis even on appeal. So much depends on the facts of the case that any general rule would tend to mislead. We can only advise him to divide the rent according to the number and value of the rooms used respectively for private and professional purposes—remembering that the ground floor front is the most valuable part of the premises.

"Pay as you Earn"

A. R. asks whether a medical man acting as an assistant on a monthly salary comes within "pay as you earn."

*** Yes.

"Pay as you Earn": War Bonus

M. S. has received an increase in remuneration to salary £550 plus £100 allowance and £49 11s. war bonus, total £699 11s., as from March, 1944.

*** He comes within the "pay-as-you-earn" arrangements as from April 5, 1944; the £600 limit under the 1943 Act was removed by the Act passed last month. The war bonus is liable to tax in the same way as the salary.

LETTERS, NOTES, ETC.

A "Super" Vitamin: Disclaimer

Sir FREDERICK GOWLAND HOPKINS, O.M., F.R.S., writes: During the last few days a statement has been made in certain organs of the Press that I am devoting my remaining years to the study of a "super" vitamin. This statement has implications which are not justified, and has caused me some distress. I should be most grateful if you could spare space in your columns to say that it is entirely untrue.

Erythema Nodosum

Dr. H. GUY DAIN (Birmingham) writes: In "Any Questions?" of April 1 (p. 481), under the heading "Erythema Nodosum," is the statement that "by the time the skin lesion appears it is too late to use sulphonamide treatment." This is contrary to my experience that in many cases of streptococcal origin almost dramatic cures have been obtained by the use of the original sulphonamide. It is only fair to say that the course of other cases has not appeared to be influenced.

Argyrol and Ephedrine in Saline

RONA LABORATORIES Ltd. (London, N.W.2) write: In your issue of March 11 Messrs. E. W. Barstow and T. D. Whittet, writing on the mixture of argyrol and ephedrine in normal saline, refer to "the proprietary article." This obviously means our nasal drop "argotone," and we ask the courtesy of your column to comment on their statement. Anyone who has read the communication from Messrs. Barstow and Whittet might well be under the impression that the mixture prepared according to their own process and the proprietary article are "indistinguishable." If, however, one reads carefully a subsequent article signed by the same authors and published in the *Pharmaceutical Journal* of March 25 (p. 121), it can be seen that the preparation made according to their process shows a precipitate after six weeks. It is therefore obvious that their preparation is not chemically and therapeutically speaking "indistinguishable" from "argotone," for which we claim stability for many months under conditions not nearly as good as those prevailing in the Charing Cross Hospital.

Urinary Damage due to Sodium Bicarbonate?

Dr. E. G. COHEN writes: Mr. J. T. Rice Edwards's letter (Jan. 22) on suppression of urine in a case of partial gastrectomy was interesting. The patient had 14½ g. sulphathiazole (the odd tablet number seems erroneous with even tablet dosage) and presumably 12 to 15 drachms of sodium bicarbonate. On Dec. 2 this patient had, in my opinion, extrarenal uraemia with suppression of urine. No mention is made of delayed shock owing to fluid imbalance, so I take it this factor can be ruled out. The *p*H of the urine, and whether any debris or crystals were passed in the first specimen, are not mentioned. In the absence of these observations, I would point to a similar occurrence—viz., alkalosis—and with it uraemia as gauged by high blood urea levels—for example, 300 mg. %—in cases of peptic ulcer taking sodium bicarbonate indiscriminately. A normal person requires to ingest some 4 to 5 g. of sodium bicarbonate before passing alkaline urine. In this case the total dosage was about 50 g. over three days. The mechanism of the coincident uraemia is ill understood; I certainly have had no satisfying explanation from the biochemists. Sulphathiazole is the most soluble of the "sulpha" drugs, and though it may have been responsible for urinary damage on a dose of 14½ g., I am of the opinion that the sodium bicarbonate was to blame. The treatment by hydration of the patient was excellent therapeutics.

Premarital Examination

In the *Journal* of March 4 (p. 347) a question was asked about premarital examination. A correspondent draws our attention to the pamphlets issued by the Eugenics Society (69, Eccleston Square, London, S.W.1). One pamphlet is entitled "Health Examination before Marriage," which is addressed "to those about to get married: also to their parents." Notes are issued, too, for the doctor who conducts the prenuptial examination, and a schedule is provided, part of which is to be completed by the applicant, and part of it is to be filled up by the examining doctor. The society will issue the schedule to doctors only—not to patients—at a price of 1s. (including the notes for the examining doctor).

Baptism of Non-viable Infants

Dr. A. PINEY (London, W.1) writes: It is not correct to state that in the Roman Church baptism "may be performed in case of emergency by any adult lay communicant" (April 8, p. 511). The position is that the infant can be validly baptized by any adult who intends to do as the Church does: the question whether the adult be a communicant or not is irrelevant, as are all his (or her) other beliefs and habits. All that is required is the performance of the rite in its bare essentials, together with the proper intention. Furthermore, there is nothing to restrict this power to adults: prudent adolescents—e.g., probationer nurses—can baptize validly. The baptism of premature infants, either *sub conditione* or absolutely, is not covered by a rule as simple as you suggest. It is safe to say: if the child is obviously alive, it can be baptized absolutely, but, if there is any doubt, baptism must be conditional—i.e., "If you are alive, I baptize you, etc." May I refer those who wish for accurate information on this and similar matters to *The Catholic Doctor*, by Father A. Bonnar, O.F.M.

The Rev. A. WILSON (Newcastle-upon-Tyne) writes: I have read with interest the reply given under "Any Questions?" on the subject of advice to be given as to baptism in the case of non-viable infants (April 8, p. 510). The reply is, I think, in some respects inaccurate, and perhaps doctors who are interested in this point might like to know Anglican and Roman teaching on the point. (1) From the standpoint of moral theology the separate existence of the child is not judged by whether it "gave signs of life after being completely free from the mother," but from the moment of the infusion of the rational soul, generally held to be at, or shortly after, conception. Therefore not only must baptism be given, if necessary, before actual birth (in this case by the doctor or midwife), but also to any prematurely delivered product of conception. (2) In case of emergency baptism may be given not only by "any adult lay communicant," but by anyone, not even necessarily himself baptized, so long as he has sufficient use of reason, and employs the right matter and form. It is, of course, *preferably* to be given by a cleric before a lay person, and preferably by a baptized person before an unbaptized.

Corrigendum

The visual angles described in Mr. H. C. Weston's letter on characteristics of vision in fine work (April 15, p. 539) should have been given in seconds (″). The correct references are: 3.125″ (secs.), 24.14″, 3.39″, 24″, and 25″.